Sexy social media photos disproportionately penalize female candidates' professional outcomes: Evidence of a sexual double standard☆

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ABSTRACT

It has become an increasingly popular practice for decision makers to use information available on candidates' social media accounts to make professional selection decisions (e.g., who is given resources or job offer). The present work examines whether there is a *sexual double standard* in how candidates' "sexy" social media photos shape professional selection decisions. Although extant evidence for sexual double standards is weak or inconsistent, we obtain strong and robust evidence of a sexual double standard in how sexy social media photos bias professional selection decisions. Across four studies ($N = 813$), participants evaluated candidates for a desirable scholarship or job position and had access to photographs presumably available on candidates' social media accounts. Participants were presented with either self-sexualized or semi-professional photos of candidates, which had been judged by independent samples as differing on sexiness and seductiveness, but comparable in attractiveness and likability. When participants saw self-sexualized photos (vs. semi-professional photos) of the candidates, they were significantly less likely to choose the female candidate (Study 1a). This sexual double standard was replicated in a Chinese sample (Study 1b), and among individuals with hiring experience (Studies 2–3). The penalty against female candidates occurred specifically for sexy photos, but not for other non-sexual photos unrelated to work (Study 2), and even for candidates with unequivocally strong qualifications (Study 3). The effect of sexy social media photos to disproportionately penalize female candidates' professional outcomes was generalizable across participants of different genders, races, and self-reported endorsement of sexual double standards, as well as across different sets of photo stimuli. Our work has implications for individuals seeking professional advancement and organizations seeking to promote equity, diversity, and inclusion.

1. Introduction

More than four billion people worldwide have social media accounts. With the prevalence of social media use, one unintended consequence is that social media users make available a wealth of personal information to others for social purposes, but this information may be used for making evaluations about professional outcomes (Zhang et al., 2020). According to a national survey in 2018, 70% of recruiters indicated using social media sites to research job candidates during the hiring process, a number that has grown from 11% in 2006 (CareerBuilder, 2018). And of the recruiters who did search for candidates' social media accounts, over half of them indicated that they had found content that made them decide not to hire a candidate (CareerBuilder, 2018). Indeed, recent research revealed that social media profiles contained a variety of personal information unrelated to work, such as religiosity and marital

status, that could negatively influence recruiters' evaluations of candidates (Becton, Walker, Gilstrap, & Schwager, 2019; Zhang et al., 2020). Crucially, these evaluations based on social media accounts did not predict candidates' actual job performance (Van Iddekinge, Lanivich, Roth, & Junco, 2016; Woods, Ahmed, Nikolaou, Costa, & Anderson, 2020; Zhang et al., 2020).

Of the great variety of personal information available on social media accounts, the current research focuses on sexual information revealed through self-sexualized photos (i.e., photos of the self with an attempt to appear sexy). Our work investigates whether female (vs. male) candidates are particularly penalized in professional selection decisions for their sexy social media photographs. It is not uncommon for people to post self-sexualized photos on social media (Blake, Bastian, Denson, Grosjean, & Brooks, 2018; Herring & Kapidzic, 2015; Ramsey & Horan, 2018; van Oosten, Vandenbosch, & Peter, 2017; Vandenbosch,

van Oosten, & Peter, 2015). Particularly relevant to the current research, content analyses of job seekers' Facebook sites showed that 15% (Study 1) to 24% (Study 2) contained sexual information, and this information negatively impacted recruiters' hireability evaluations of the job seekers (Zhang et al., 2020). However, existing research has largely overlooked how self-sexualized photos on social media might differentially influence male and female candidates in the professional selection process.

To be clear, much research has been interested in the effect of candidate gender in professional selection, promotion, and evaluation (Biernat & Vescio, 2002; Cuddy, Fiske, & Glick, 2004; Davison & Burke, 2000; Heilman & Okimoto, 2008; Jampol & Zayas, 2021; Koch, D'Mello, & Sackett, 2015). On the one hand, gender biases against women in the professional selection process have been well-documented (for review, see Davison & Burke, 2000; Koch et al., 2015). For example, past research found that women, compared to men, are less likely to be hired for a lab manager position (Moss-Racusin, Dovidio, Brescoll, Graham, & Handelsman, 2012), are less likely to be invited as colloquium speakers at top universities (Nittrouer et al., 2018), receive more backlash for demonstrating self-promotional behaviors (Rudman & Glick, 1999, 2021), and when becoming parents, are perceived to be less competent and are less likely to be hired (Cuddy et al., 2004; Heilman & Okimoto, 2008).

On the other hand, some recent work finds evidence of a female hiring advantage. For example, in national randomized experiments conducted by Williams and Ceci (2015), faculty evaluating hypothetical candidates applying for tenure-track positions in Science, Technology, Engineering, and Math (STEM) fields showed a 2:1 hiring preference for female over male candidates. Similarly, in a field study by Zhang et al. (2020), recruiters attending a university career fair gave actual female job seekers higher hireability ratings than their male counterparts (Zhang et al., 2020). Beyond experimental research, analysis of archival data also finds that female candidates are favored over male candidates when being selected as fellows of a prestigious society in Economics in the past decade (Card, DellaVigna, Funk, & Iriberri, 2022), being recruited for a large bioscience company (Fernandez & Abraham, 2011), and being hired as tenure-track faculty members at universities (Glass & Minnotte, 2010; Kimura, 2002; Seligman, 2015). Still, despite the extensive work on how gender affects professional selection and hiring, there has been scant attention to how gender biases may be introduced through social media—the focus of the present work.

Another line of work relevant to the present aims is research on how self-sexualization affects perceptions of women. This line of work shows that women who are self-sexualized (vs. not) are perceived more negatively (e.g., Daniels, 2016; Daniels & Zurbriggen, 2016; Ward, Seabrook, Grower, Giaccardi, & Lippman, 2018). For example, Daniels and Zurbriggen (2016) showed participants a Facebook profile with either a self-sexualized profile photo or a non-sexualized profile photo of a young woman and then asked them to evaluate the profile owner. Women with self-sexualized Facebook profile photos were evaluated as less attractive, less socially appealing, and less competent (Daniels & Zurbriggen, 2016). Although this literature shows that women who self-sexualize are evaluated more harshly, it does not examine the extent to which self-sexualization also negatively affects men. Consequently, this literature does not speak to whether sexy social media photos are particularly harmful to the professional advancement of female candidates, compared with male candidates.

In the present work, our hypothesis that female (vs. male) candidates would be disproportionately penalized for sexy social media photos in the professional selection process is grounded in literature on sexual double standards. The concept of sexual double standards refers to the idea that women are evaluated more harshly than men for demonstrating similar sexual behaviors (Milhausen & Herold, 2002). Conventional sexual and gender norms assume that men are more sexually active, assertive, and dominant, and thus are granted more sexual freedom than women (Endendijk, van Baar, & Deković, 2020; Morokoff, 2000; Zaikman & Marks, 2017). Consequently, overt sexual behaviors

are perceived to be more congruent with the sexual script of men than that of women (Simon & Gagnon, 1986). Having self-sexualized photos could signal being sexually experienced (Gurung & Chrouser, 2007), which may then lead to differential extents of penalty for male and female targets in terms of, for example, perception of their agency and experience, as well as moral status (Gray, Knobe, Sheskin, Bloom, & Barrett, 2011; Loughnan et al., 2010). Given this framework, we hypothesized that a sexy social media photograph may be particularly damaging to the professional prospects of female (vs. male) candidates.

Importantly, although people *believe* that sexual double standards exist and are pervasive (Conley, Ziegler, & Moors, 2013; Marks & Fraley, 2005), empirical studies have found inconsistent and weak evidence (for review, see Bordini & Sperb, 2013; Crawford & Popp, 2003; Endendijk et al., 2020; Zaikman & Marks, 2017). In other words, people's intuitions about the existence of sexual double standards fail to align with the empirical evidence. While some studies have obtained results consistent with the belief that traditional sexual double standards exist (e.g., Boyer & Galupo, 2015; Conley et al., 2013; Jonason & Marks, 2009; Marks, Young, & Zaikman, 2019), other studies have not found support for the existence of sexual double standards (e.g., Marks & Fraley, 2005; O'Sullivan, 1995; Sprecher, 1989; Weaver, Claybourn, & MacKeigan, 2013). Some other studies have found evidence of a reverse sexual double standard, where men are evaluated more negatively than women for demonstrating similar sexual behaviors (e.g., Milhausen & Herold, 2002; Papp et al., 2015; Sakaluk & Milhausen, 2012; Thompson, Hart, Stefaniak, & Harvey, 2018). (e.g., Boyer & Galupo, 2015; Conley et al., 2013; Jonason & Marks, 2009; Marks et al., 2019). A recent preregistered meta-analysis of sexual double standard studies suggests that whether a sexual double standard is observed could depend on features of the research, including how sexual double standards are measured (e. g., questionnaires vs. person perception paradigms), the specific sexual behavior being evaluated, and gender equality level in the country where the study is conducted (Endendijk et al., 2020).

1.1. Overview of studies

The current research aimed to investigate how sexy social media photographs would differentially influence male and female candidates in the professional selection process. We adapted the simulated hiring task, which is frequently used to investigate biases in the selection process (e.g., Cuddy et al., 2004; Heilman & Okimoto, 2008; Moss-Racusin et al., 2012; Williams & Ceci, 2015; for review, see Davison & Burke, 2000; Koch et al., 2015). It was also used in the national randomized experiments used by Williams and Ceci (2015), thus allowing us to conceptually replicate past findings and examine the extent to which sexy photos alter hiring outcomes for female candidates as compared to expected base rates.

Across four studies, participants evaluated candidates for a desirable scholarship (Studies 1a-1b) or job position (Studies 2–3) and had access to photographs presumably available on candidates' social media accounts. We experimentally manipulated whether the candidates' social media photographs were semi-professional vs. self-sexualized, which were pilot tested by independent samples to ensure that the self-sexualized photos were judged as higher on sexiness and seductiveness, but comparable on attractiveness and likeability. Importantly, across the four studies, we used multiple sets of photo stimuli to increase the generalizability of the findings.

Based on recent work demonstrating a female hiring advantage (Fernandez & Abraham, 2011; Glass & Minnotte, 2010; Kimura, 2002; Seligman, 2015; Shen & Shoda, 2021; Williams & Ceci, 2015; Zhang et al., 2020), it was reasonable to expect that participants would be more likely to select the female candidate over the male candidate when social media photos were semi-professional. But critically, the current study focused on the extent to which the likelihood of selecting the female candidate would decrease when participants saw the self-sexualized social media photos of candidates.

Following our rationale, Study 1a aimed to provide an initial test of whether female (vs. male) candidates are less likely to be selected when participants saw self-sexualized (vs. semi-professional) social media photos of the candidates. We aimed to demonstrate the generalizability of our results by replicating the findings with a sample of Chinese participants (Study 1b) and among individuals with hiring experience (Studies 2–3) who may be particularly adept at avoiding biases in decision making (Koch et al., 2015). Study 2 also aimed to establish important boundary conditions and show that the penalty against female candidates occurs specifically for sexy photos, but not for other non-sexual photos unrelated to work (i.e., photos of candidates eating or doing physical exercise). Given past research showing that biases tend to be reduced or eliminated when candidates have unequivocally strong qualifications (Biernat & Vescio, 2002; Koch et al., 2015; Swim, Borgida, Maruyama, & Myers, 1989; Tosi & Einbender, 1985), Study 3 aimed to test whether the identified bias extends to candidates with exceptional qualifications. Additionally, whereas Studies 1a-2 used a within-subjects fixed design, Study 3 adopted a between-subjects design where participants were randomly assigned to view either the semi-professional photos or the self-sexualized photos. The between-subject design allowed us to rule out alternative accounts that participants' decisions reflect moral licensing or distributive justice concerns (e.g., feeling free or being motivated to choose the male candidate on the second trial after choosing the female candidate on the first trial). Lastly, we conducted a meta-analysis of the data from all studies to provide a more precise estimate of the effect size of self-sexualized vs. semi-professional photos on participants' likelihood of choosing female (vs. male) candidates in the professional selection process. The meta-analysis also allowed us to estimate the extent to which the size of the sexy social media photo penalty against female candidates varied across studies.

1.2. Open science statement

We report all studies that have been conducted to test the hypothesis that sexy social media photos disproportionately penalize female candidates in the professional selection process.[1] The procedures, sample size, exclusion criteria, and data analyses plans for Study 1a, Study 2 and Study 3 were preregistered prior to data collection. All research reported was approved by an institutional review board (protocol number: 2002009398). All measures collected, including those unreported in the article, are detailed in full in our preregistrations and the *Supplemental Materials*. Deidentified data and the data-analysis code (in R) are posted on OSF (https://osf.io/qc34r/?view_only=1dbc94afb9eb46ae9a8a6dcee2bf6f07).

2. Study 1a-1b

In Study 1a, we aimed to provide an initial test of whether decision makers differentially penalize male and female candidates in the professional selection process after seeing the candidates' self-sexualized (vs. semi-professional) social media photos. Study 1a was preregistered on OSF (https://osf.io/c3vra/?view_only=4d5cede7ec704c34984aa7c2d3237822). Study 1b aimed to examine if the results observed in Study 1a would replicate in a Chinese sample. Notably, as compared to the US, China scores lower on measures of gender equality (United Nations Development Program, 2019; World Economic Forum, 2019), which is a country-level predictor of endorsing sexual double standards (Endendijk et al., 2020). Thus, Study 1b provides an important test of the generalizability of the phenomenon beyond a Western sample (Henrich, Heine, & Norenzayan, 2010).

2.1. Method

2.1.1. Design

Studies 1a and 1b shared the same experimental design. In both studies, social media photo type (semi-professional vs. self-sexualized) was manipulated within-subjects.

2.1.2. Participants

2.1.2.1. Study 1a. Students from a Northeastern university in the United States participated in the study for course credit, which included the task for the current study and tasks for other projects (all presented in a random order). Participants were recruited through the University's psychology experiment sign-up system. Following the preregistration, we excluded participants who began the study but did not complete it (n = 2). The sample for Study 1a consisted of 184 participants (79.89% women, 20.11% men; 41.85% White, 30.43% Asian, 20.65% Multiracial or Other, 6.52% Black, 0.54% Native Hawaiian or Other Pacific Islander; 11.41% Hispanic/Latino) who were between the ages of 18 to 23 years old ($M = 19.81$, $SD = 1.19$). To test our focal hypothesis about the effect of photo type (semi-professional vs. self-sexualized; manipulated within-subjects) on the proportion of participants choosing the female (vs. male) candidate, we preregistered to run the McNemar test, which is a non-parametric test used to examine paired dichotomous data (Lachenbruch, 2014). A sensitivity analysis indicated that with an N of 184 and focal test that involves the McNemar test, the present study could detect an effect size of odds ratio = 0.56 with 80% statistical power (two-tailed, alpha = 0.05, proportion of discordant pairs = 0.59).

2.1.2.2. Study 1b. College-aged students from China participated in the study for monetary compensation, which was part of a larger project on sexual double standards. Participants were recruited through advertisements posted on social media networks. All the participants who began the study completed it and thus were included in the sample. The sample for Study 1b consisted of 69 participants (63.77% women, 36.23% men; All identified as Asian) between the ages of 18 to 27 years old ($M = 21.48$, $SD = 2.14$). A sensitivity analysis indicated that with an N of 69 and focal test that involves the McNemar test, the present study could detect an effect size of odds ratio = 0.40 with 80% statistical power (two-tailed, alpha = 0.05, proportion of discordant pairs = 0.60).

2.1.3. Procedure

2.1.3.1. Overview. The methods and procedures for Studies 1a and 1b were identical unless otherwise noted. Participants completed the study online. Study 1a was presented in English and Study 1b was presented in Chinese. After providing consent, participants completed a simulated hiring task, which consisted of making two decisions, and then answered demographic questions about age, gender,[2] sexual orientation, and race at the end of the study. Participants in Study 1a were also asked to report their ethnicity.

2.1.3.2. Simulated hiring task. In the simulated hiring task, participants were asked to simulate the following scenario:

"Your school is offering a merit-based scholarship to students. A few candidates have passed previous rounds of assessments and have been

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[1] Ongoing work is examining the potential mechanisms of the sexy social media photo penalty against female candidates, and why decision makers are interested in seeking out candidates' social media information. This work is in progress and addresses questions discussed in the General Discussion.

[2] For Studies 1a-3, we explored participant gender as a potential moderator in the effect of photo type on participants' choices. The sexy social media photo penalty against female candidates held for both male and female participants in all the studies, except in Study 1b for male participants, due to the small number of male participants in the sample (n = 25). See *Supplemental Materials*. The null findings with respect to the moderating role of participant gender is consistent with a meta-analysis (Endendijk et al., 2020) failing to find evidence of gender differences in sexual double standards.

recognized to be comparable in terms of their qualifications. They are now waiting for the final decision. One of your friends, out of curiosity, searched their names on Instagram and found their accounts."

They were then presented with pictures that the candidates posted on Instagram (with faces blurred) and were asked "whom [they] think should get the scholarship." Using a within-subjects design, each participant was presented with two trials, one trial for each photo type. On the first trial, participants were presented with semi-professional photos of a male and a female candidate. On the second trial, participants were presented with self-sexualized photos of two different male and female candidates. The location of the photos of the male and the female candidate (i.e., which photo is presented on the left or the right of the screen) was randomized for each participant on each trial. On each trial, participants were asked to choose which of the two candidates should get the scholarship (see Fig. 1A). We intentionally chose to present the two photo type trials in a fixed order, with the semi-professional photo trial always first. Seeing semi-professional photos is more typical given the professional selection context. Thus, presenting the non-sexual photo trial first provides us with the opportunity to measure participants' decision making in more typical situations, likely providing a conceptual replication of past work (Williams & Ceci., 2015).

2.1.3.3. Photo stimuli. In the simulated hiring task, Study 1a used photos of Caucasian-looking men and women as photo stimuli and Study 1b used photos of Asian-looking men and women as photo stimuli. The decision was motivated by the desire to match the targets' race with the race of the majority of the recruitment pools of Study 1a and 1b, respectively.

To obtain photo stimuli, we first conducted an exploratory photo search on Google Image to find photos of male and female Caucasian / Asian targets in their early- to mid-twenties, either dressed and posed in a sexy manner (i.e., sexual photos) or in a more semi-professional manner (i.e., non-sexual photos). Search words such as "sexy Caucasian /Asian male / female profile photos," and "Caucasian / Asian male / female college student portraits" were used. Our aim was to select pairs of photos, of one male and one female, with similar visual patterns. We then standardized each photo by resizing them to 500 × 500 pixels and applying a mosaic filter to the face area of the photo to conceal the identity of the target.

From the preliminary set of photos, we aimed to identify photo stimuli that differed on sexiness and seductiveness, but were comparable on other important characteristics (e.g., attractiveness). To do so, we conducted two pilot studies, for Studies 1a and 1b respectively, to identify photos that met two requirements: a) the male and female
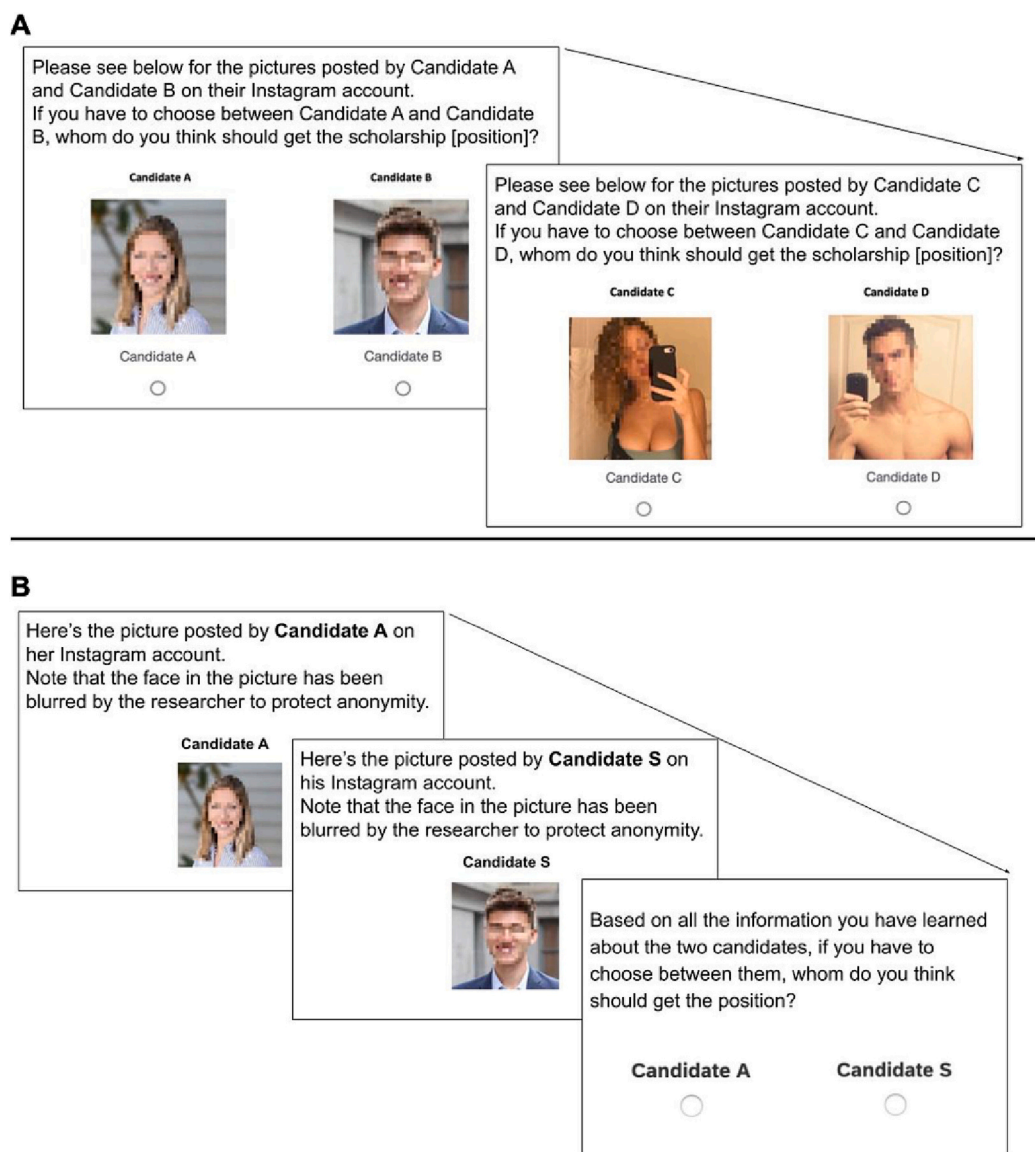

Fig. 1. Illustration of part of the simulated hiring procedure and stimuli used in Studies 1a-2 (panel A) and Study 3 (panel B). Studies 1a-2 adopted a within-subjects design where participants first made their decision on the semi-professional photo trial and then on the self-sexualized photo trial. Within each trial, participants were presented with a photo of a male candidate and a photo of a female candidate side-by-side and were asked to choose who should get the scholarship (Studies 1a-1b) or the position (Study 2). Study 3 adopted a between-subjects design where participants were randomly assigned to either the semi-professional or the self-sexualized photo condition, wherein they saw photos of a male and a female candidate, presented one-by-one in a randomized order. Participants were then asked to make their decision. For a full list of photo stimuli used in the current research, see *Supplemental Materials*.

targets within each pair were comparable with respect to attractiveness and likeability, as well as sexiness, and seductiveness; and b) the sexual photo pairs, compared with non-sexual photos, were rated as higher on sexiness and seductiveness but comparable on attractiveness and likeability. In the pilot studies, independent groups of participants ($N = 16$ for Study 1a; $N = 23$ for Study 1b) were presented with photos one-by-one in a randomized order. For each photo, participants were asked to indicate, "*To what extent do you think the person in this picture is attractive / likeable / sexy / seductive?*" on a 7-point scale (1 = *not at all*; 7 = *extremely*). We selected two pairs of photos for each photo type (semi-professional and self-sexualized) that met our two requirements. In the simulated hiring task, participants were randomly presented with one pair of photos for each photo type trial. For the full list of photo stimuli used in the current work and results of the pilot studies, see *Supplemental Materials*.

2.2. Results and discussion

2.2.1. Study 1a (US Student Sample)

Self-sexualized photos, compared with semi-professional photos, led to a greater penalty against female candidates (vs. male candidates), decreasing the likelihood of female candidates being selected for the scholarship by 39.13%, $\chi^2(1) = 48.47$, $p < .001$, odds ratio = 0.18 (McNemar test; see Fig. 2). On the semi-professional photo trial, participants were significantly more likely to choose the female candidate (79.89%) as compared to chance (50%), $\chi^2(1) = 64.57$, $p < .001$, Cohen's $h = 0.91$. But on the self-sexualized photo trial, they were significantly less likely to choose the female candidate (40.76%), as compared to chance, $\chi^2(1) = 5.92$, $p = .015$, Cohen's $h = 0.26$.

2.2.2. Study 1b (Chinese Student Sample)

Similar to Study 1a, self-sexualized photos, compared with semi-professional photos, decreased the likelihood of female candidates being selected for a desirable scholarship by 40.58%, $\chi^2(1) = 17.36$, $p < .001$, odds ratio = 0.20 (McNemar test; see Fig. 2). On the semi-professional photo trial, participants were significantly more likely to choose the female candidate (65.22%), as compared to chance, $\chi^2(1) = 5.80$, $p = .016$, Cohen's $h = 0.44$. But on the self-sexualized photo trial, they were significantly less likely to choose the female candidate (24.64%) as compared to chance, $\chi^2(1) = 16.75$, $p < .001$, Cohen's $h = 0.75$.

Studies 1a and 1b provide initial empirical evidence that self-sexualized photos, compared with semi-professional photos led to a greater penalty against female candidates. The finding that female candidates were favored on the semi-professional photo trial is consistent with recent work suggesting a female hiring advantage (e.g., Williams & Ceci, 2015). Interestingly, we demonstrate a female hiring advantage in a Chinese sample, documenting the robustness and generalizability of this effect beyond a Western context. But critically, our work is focused on how self-sexualized photos differentially affect professional outcomes of female and male candidates. If self-sexualized photos negatively affect female and male candidates equally, then the relative preference for female candidates would have remained consistent regardless of the nature of the photographs. But this was not the case; self-sexualized photos significantly decreased the likelihood of female candidates being selected by approximately half. The results are particularly striking because they are based on evaluations provided by college-aged student samples who are typically more egalitarian and progressive in their views (Scott, 2022), especially those in the US sample, and may be less likely to endorse and express gender biases and adhere to traditional sexual double standards.
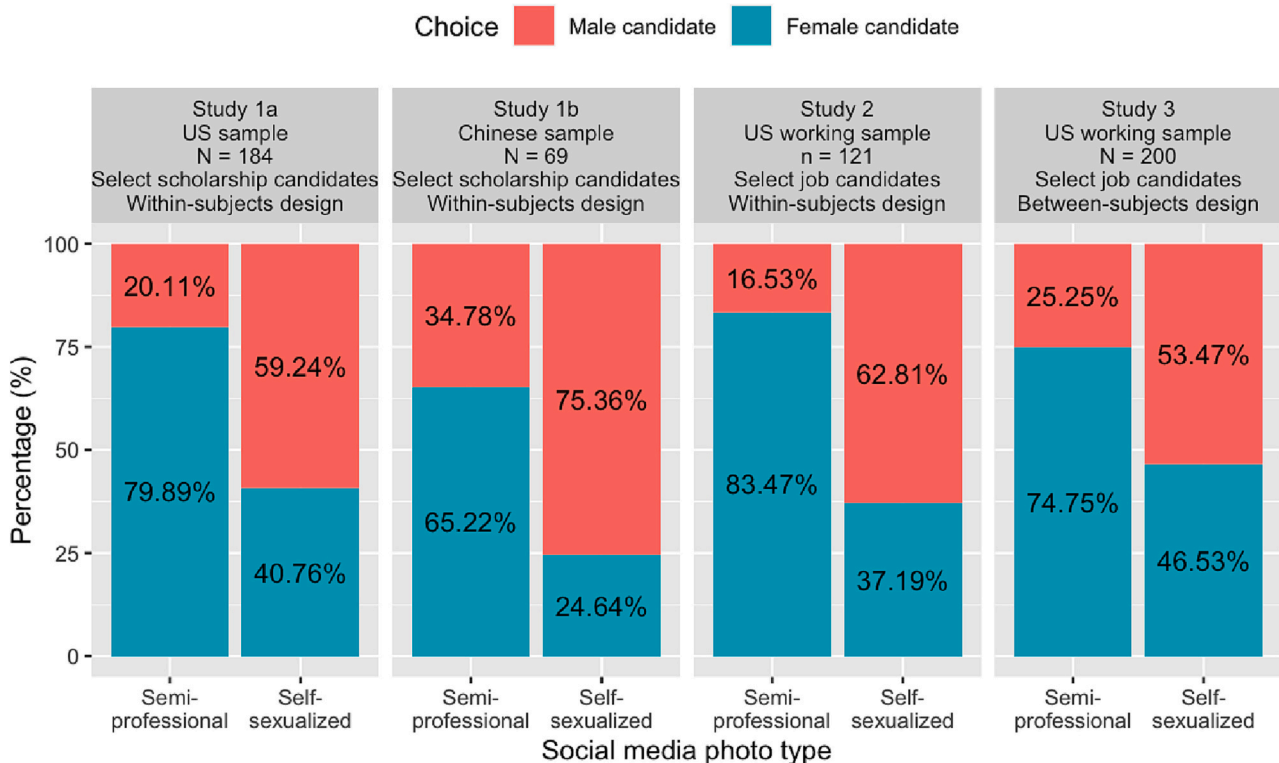

Fig. 2. Comparison between the percentage of participants who selected the female vs. male candidate on the semi-professional vs. self-sexualized photo trial across Studies 1a-3. Seeing self-sexualized photos, compared with semi-professional photos of the candidates, decreased the likelihood of female candidates being selected for the scholarship or job position. Note that for Study 2, we only presented the results of participants who saw semi-professional photos of the candidates on the non-sexual trial (about one third of the sample in Study 2) to keep the result presentation here comparable across studies. There were other participants in the sample who were presented with other domains of non-sexual photos of candidates (i.e., eating or exercising). Those results were illustrated in Fig. S4.

3. Study 2

The aim of Study 2 was twofold. First, it is important to ensure that these effects generalize to individuals who routinely make hiring decisions. Past work has found that people with more hiring experience are less biased in the process (Koch et al., 2015). Therefore, Study 2 recruited participants with hiring experience and asked them to evaluate and select candidates for a junior consultant position for their company as a member of the hiring committee.

Second, Study 2 aimed to establish important boundary conditions and show that the penalty against female candidates occurs specifically for sexy photos, but not for other non-sexual photos unrelated to work. That is, one alternative explanation for the obtained results is that female candidates are simply penalized for photos incongruous with the context in which they are being evaluated. Evaluation contexts influence how targets with the same information are perceived (Todorov & Porter, 2014). Photographs incongruent with the professional selection context may trigger disfluency in processing, which may further trigger biases in judgment and decision making (Pearson & Dovidio, 2013). When encountering incongruous information, individuals from certain social groups may be given the "benefits of the doubt" whereas others are not (Dovidio & Gaertner, 2000). It is possible that female candidates are not disproportionately penalized for sexy social media photos, but for any photos that are incongruous with the evaluation context. To address this concern, in Study 2, participants were randomly assigned to one of the three domains of non-sexual photos on the non-sexual photo trial: semi-professional photos similar to Studies 1a and 1b, or photos of the candidates eating, or photos of the candidates doing physical exercise. We hypothesized that self-sexualized photos would decrease the likelihood of female candidates being selected, compared with each domain of non-sexual photos. Study 2 was preregistered on OSF (https://osf.io/dxcp4/?view_only=3068bef522cb45e3bec6cc2cc75a1001).

3.1. Method

3.1.1. Design

The design of Study 2 was highly similar to that of Studies 1a and 1b. Social media photo type (non-sexual vs. sexual) was a within-subjects factor. Participants were presented with the two trials in a fixed order: the non-sexual photo trial first and the sexual photo trial second. But Study 2 differed from the previous two studies in that, on the non-sexual photo trial, participants were randomly assigned to one of the three non-sexual photo domains: semi-professional, eating, or exercising (see *Supplemental Materials* for photo stimuli used in Study 2). Therefore, Study 2 used a 2 (photo type: sexual vs. non-sexual) X 3 (domain of non-sexual photo: semi-professional vs. eating vs. exercising) mixed-subjects design, with photo type being a within-subjects factor and domain of non-sexual photo being a between-subjects factor.

3.1.2. Participants

Participants were recruited from Prolific for monetary compensation. We prescreened the sample to be within the age range of 30 to 50 years old, with hiring experience, and to be gender balanced. 430 participants participated in the study. Following the preregistration, we excluded 70 participants, including those who did not meet the prescreen validation of having had hiring experience ($n = 37$), who failed the attention check ($n = 32$), and who did not complete the main dependent variable measure (i.e., who did not pick candidates on both the sexual and the non-sexual photo trial; $n = 1$). See *Supplemental Materials* for the prescreen validation question on Prolific and the attention check question used in Study 2. The final sample consisted of 360 participants (51.94% women, 48.06% men; 70.00% White, 10.28% Multiracial or other, 9.44% Black, 9.17% Asian, 0.56% Native American/Alaska Native, 0.56% Native Hawaiian/Pacific Islander; 14.17% Hispanic/Latino) between the ages of 30 to 50 years old ($M = 37.88$, $SD = 5.82$). The majority (80.00%) of the participants indicated that they

make hiring decisions at least once or twice a year. Most (68.33%) participants were also involved in making hiring decisions within the last 12 months.

The main statistical analysis was a multilevel logistic regression constructed to examine the effect of photo type (non-sexual vs. sexual) and the effect of non-sexual photo domain (semi-professional vs. eating vs. exercising) on participants' hiring decisions. We preregistered using multilevel logistic regression as our focal test to account for the fact that data were nested within participants and the dependent variable of participants' hiring decision was a binary variable. Our primary focus was the effect of photo type. A sensitivity analysis indicated that with a sample size of 360 participants, our study achieved 80% statistical power to detect an effect size of odds ratio = 0.53 (two-tailed, alpha = 0.05, probability of choosing the female candidate on the non-sexual photo trial to be 0.74, binomial distribution of the predictor) for our focal hypothesis about the effect of social media photo type on participants' likelihood of choosing the female vs. male candidate.

3.1.3. Procedure

The procedure of Study 2 was highly similar to the procedures used in Studies 1a-1b. After granting consent, participants were asked to complete the simulated hiring task, which consisted of making two hiring decisions. They were asked to simulate the following scenario:

"The company you are working for is recruiting for a Junior Consultant position. You are on the hiring committee. Candidates have completed several rounds of assessments. A few candidates have been identified as meeting the requirements for the position and are comparable in terms of their qualifications. The hiring committee is ready to make a final decision. One of your colleagues, out of curiosity, searched the names of the candidates on Instagram and found their accounts."

Participants were presented with the two trials in a fixed order: the non-sexual photo trial first and the sexual photo trial second. On the non-sexual photo trial, participants were randomly assigned to one of the three non-sexual photo domains: semi-professional, eating, or exercising. Following the procedure and criteria in Studies 1a-1b, we prepared two pairs of photos for each photo domain (see *Supplemental Materials* for photo stimuli used in Study 2). On each trial, participants were randomly presented with one pair of photos (of one male candidate and one female candidate) and asked to choose the candidate whom they think should be offered the position (see *Supplemental Materials* for the full instruction of the task in Study 2).

Afterwards, participants were asked demographic questions about age, gender, ethnicity, race, sexual orientation, educational level, and political orientation. We also probed participants about their hiring experience and explicit endorsement of sexual double standards (see *Supplemental Materials*).[3]

3.2. Results and discussion

To answer our main research question about whether participants' choice of the male vs. female candidate was influenced by social media photo type, we conducted a multilevel logistic regression analysis. The dependent variable was participants' choice (1 = female candidate, 0 = male candidate) on each trial. Photo type (sexual vs. non-sexual) and non-sexual photo domain (semi-professional vs. eating vs. exercising) were entered as fixed predictors. Participant was treated as a random effect wherein each participant's intercept was allowed to vary.

Replicating the results from Studies 1a and 1b, we found that self-

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[3] In Studies 2–3, we measured participants' explicit endorsement of sexual double standards and explored whether it would moderate the effect of photo type on participants choices. The effect of self-sexualized photos to decrease the likelihood of female candidates being selected held for all participants, regardless of their explicit endorsement of sexual double standards in both Studies. See *Supplemental Materials*.

sexualized photos, compared with non-sexual photos (i.e., semi-professional, eating, or exercising photos) significantly decreased the likelihood of female candidates being selected for the Junior Consultant position by 38.88%, $b = -1.68$, $SE = 0.16$, 95% CI [-2.01, -1.36], $z = -10.21$, $p < .001$, odds ratio $= 0.19$. Overall, on the non-sexual photo trial, participants were significantly more likely to choose the female candidate (74.44%), as compared to chance, $\chi^2(1) = 85.07$, $p < .001$, Cohen's $h = 0.72$. But on the sexual photo trial, participants were significantly less likely to choose the female candidate (35.56%) as compared to chance, $\chi^2(1) = 29.47$, $p < .001$, Cohen's $h = 0.41$.

To test whether the effect of photo type (sexual vs. non-sexual) was moderated by the domain of non-sexual photos to which participants were randomly assigned, we added the interaction between photo type and non-sexual photo domain as a fixed predictor into the original multilevel logistic regression model. The interaction effect was statistically significant (likelihood ratio test; $\chi^2(2) = 9.47$, $p = .009$). Follow-up analyses indicated that the significant interaction effect was explained by participants being less likely to choose the female candidate on the non-sexual photo trial when being presented with eating photos, compared with the other two domains of non-sexual photos, $ps < = 0.019$. For details of the follow-up analyses results, see *Supplemental Materials*. But crucially, planned pairwise comparisons indicated that, regardless of which domain of non-sexual photos participants were presented with, they were significantly less likely to choose the female candidate on the sexual photo trial than on the non-sexual photo trial ($ps < 0.001$).

Overall, Study 2 replicates the findings of Studies 1a and 1b, but now with individuals with hiring experience. We once again find evidence of a female hiring advantage on the non-sexual photo trial. But importantly, we again find evidence of the sexy social media photo penalty against female candidates. Study 2 demonstrates the generalizability of our findings to people who engage in real-world decision making and who are expected to be less susceptible to biases (Koch et al., 2015). Further, Study 2 establishes boundary conditions, showing that the penalty against female candidates occurs specifically for sexy photos, but not for other non-sexual photos unrelated to work (i.e., photos of candidates eating or doing physical exercise).

4. Study 3

Despite the robustness of our findings in Studies 1a-2, additional questions remain. First, in real-world hiring decisions, recruiters typically have much more individuating and diagnostic information about the candidates' qualifications than what we made available to our participants in Studies 1a-2. When individuating information is available, stereotypes usually play a constrained role in impression formation and decision making (Kunda & Sherman-Williams, 1993; Rubinstein, Jussim, & Stevens, 2018). Furthermore, several meta-analyses have shown that diagnostic individuating information that signals candidates' unequivocally strong qualifications lessens biases in hiring (Koch et al., 2015; Swim et al., 1989; Tosi & Einbender, 1985). Thus, Study 3 aimed to answer an important question: does the sexy social media photo penalty against female candidates occur when decision makers learn more detailed information about candidates' unambiguously strong qualifications? To do so, in Study 3, participants were provided with candidates' credentials, which contained information that clearly signaled their exceptionally strong qualifications.

Additionally, Studies 1a-2 used a within-subjects design wherein participants were presented with the semi-professional photos of candidates on the first trial and the self-sexualized photos of candidates on the second trial. One might wonder if participants' choices on the first semi-professional photo trial would influence their choices on the subsequent self-sexualized photo trial. For example, a plausible alternative explanation for the results of Studies 1a-2 is that participants may choose a female candidate on the first semi-professional photo trial to appear egalitarian (Paulhus, 1984) and once this goal was fulfilled via their first decision, participants would be less likely to choose the female

candidate on the subsequent self-sexualized photo trial. In this case, the decrease in the likelihood of selecting a female candidate may not be a reflection of a sexy photo penalty against female candidates, but a reflection of "licensing" that follows the first decision (Merritt, Effron, & Monin, 2010; Monin & Miller, 2001). Another plausible explanation is that participants are genuinely concerned by distributive justice (Cook & Hegtvedt, 1983; Deutsch, 1975). In this case, once they have selected the female candidate on the first semi-professional photo trial, they would be more likely to choose the male candidate on the subsequent self-sexualized photo trial. To rule out these possibilities, Study 3 used a between-subjects design where participants were randomly assigned to either the semi-professional photo trial or the self-sexualized photo trial.

Study 3 additionally assessed the percentage of participants interested in looking at candidates' social media information when making professional selection decisions. This measure was included to assess the extent that participants would seek out candidates' social media information despite having access to diagnostic information about the candidates' qualifications. Based on past work suggesting the increasing prevalence of such a practice (CareerBuilder, 2018; Zhang et al., 2020), we expected that the majority of participants would choose to view candidates' social media information before making hiring decisions. Study 3 was preregistered on OSF (https://osf.io/nh2gp/?view_only=16cca4521bb9442599fb39b79d50f72e).

4.1. Method

4.1.1. Design

The design of Study 3 was identical to that of Studies 1a-1b, except that we used a between-subjects design. Each participant was randomly assigned to the semi-professional photo condition or the self-sexualized photo condition.

4.1.2. Participants

Participants were recruited from Prolific for monetary compensation. Same as Study 2, we prescreened the sample to be within the age range of 30 to 50 years old, with hiring experience, and to be gender balanced. Two hundred and eighteen participants participated in the study. Following the preregistration plan, we excluded 18 participants who failed at least one of our inclusion criteria, specifically those who did not pass the prescreen validation ($n = 8$), who did not pass the attention check at the end of the study ($n = 0$), who did not pass the memory check ($n = 10$), and those who did not complete the main dependent variable measurement (i.e., they did not pick a candidate whom they think should get the position; n = 0). See *Supplemental Materials* for the prescreen validation question on Prolific and the attention check and memory check questions in Study 3. The final sample consisted of 200 participants (50.50% women, 49.50% men; 78.00% White, 9.00% Asian, 6.50% Black, 6.00% Multiracial or other, 0.50% Native American/Alaska Native; 7.00% Hispanic/Latino) between the ages of 30 to 50 years old (M = 38.99, SD = 6.14). The majority (76.50%) of the participants indicated that they make hiring decisions at least once or twice a year. Most (64.00%) participants were also involved in making hiring decisions within the last 12 months.

The main statistical analysis used to test our primary hypothesis was a logistic regression of the effect of photo type on participants' hiring decisions. We preregistered to run logistic regression analysis as our focal analysis because the independent variable of photo type (semi-professional vs. self-sexualized) was manipulated between-subjects in Study 3 and the dependent variable of participants' choice (female vs. male) was a binary variable. A sensitivity analysis indicated that the final sample size of 200 participants was sufficient to detect an effect size of odds ratio $= 0.43$ with 80% statistical power (two-tailed, alpha $= 0.05$, probability of choosing the female candidate in the non-sexual photo condition to be 0.75, binomial distribution of the predictor) for our focal hypothesis about the effect of social media photo type on participants' likelihood of choosing the female vs. male candidate.

4.1.3. Procedure

Upon granting consent, participants were asked to do the simulated hiring task. Participants were asked to simulate the same scenario as in Study 2 that the company they are employed at is recruiting for the Junior Consultant position and that they are on the hiring committee. However, we modified the simulated hiring paradigm in a few ways so as to more closely mimic how decision makers are likely to encounter information in real world contexts. Inspired by past work (Campbell & Hahl, 2022; Fath, Larrick, & Soll, 2022), participants were presented with the position's job description, and then asked to review the CVs of the two candidates who have made it to the final round. Participants were presented with the candidates' CVs, one at a time, in a randomized order. No information about the two candidates' gender was in the CV and candidates were only identified by their initials (i.e., A. W. for Candidate A and S. B for Candidate S). The two CVs were created with the goals that each of the candidate described had exceptional qualifications that were comparable with each other (e.g., both graduate from top universities in the US, have high GPAs and relevant internship experience). See *Supplemental Materials* for the job description, the CVs, and the detailed procedures of presenting the CVs to ensure attention used in Study 3.

After viewing the two candidates' CVs, we measured participants' interest in looking at the information gathered from the candidates' social media. Specifically, we said, "One of your colleagues on the hiring committee, out of curiosity, searched the candidates' names on social media." We then asked "Would you be interested in taking a look at the information gathered from the candidates' social media profiles?" with options "Yes" and "No." Regardless of participants' choice, we then told participants, "To make the decision-making process equivalent for all the members in the hiring committee, regardless of your choice made on the previous page, we are going to show you the social media information of the two candidates."

Participants were then shown photographs of the candidates (with faces blurred) presumably taken from the candidates' Instagram accounts. Note that this is the first time that participants receive information about the candidates' gender. We presented the photos of the candidates one-by-one in a randomized order, which was different from Studies 1a-2 that presented the photos side-by-side. We made this modification based on the assumption that it is more likely to mimic how decision makers encounter information in the real world. Critically, participants were randomly assigned to either the semi-professional or the self-sexualized photo condition (see Fig. 1B). We used the same photo stimuli as those used in Study 2's semi-professional and self-sexualized photo trials.

After seeing both candidates' photos, participants were asked to choose between the two candidates whom they think should get the position. See *Supplemental Materials* for details.[4] Lastly, participants were asked demographic questions about age, gender, ethnicity, race, sexual orientation, educational level, and political orientation. We also probed participants about their hiring experience and explicit endorsement of sexual double standards (see *Supplemental Materials*).

4.2. Results and discussion

We conducted a logistic regression to test if participants' choice of the female vs. male candidate was influenced by social media photo type. Replicating previous results, self-sexualized photos, compared with semi-professional photos, decreased the likelihood of female candidates being selected for the position by 28.22%, $b = -1.22$, $SE = 0.31$, 95% CI [−1.82, −0.63], $z = -4.01$, $p < .001$, odds ratio = 0.29 (see Fig. 2). Participants in the semi-professional photo condition were significantly

more likely to choose the female candidate (74.75%), as compared to chance, $\chi^2(1) = 23.27$, $p < .001$, Cohen's $h = 0.73$. Directionally, participants in the self-sexualized photo condition were less likely to choose the female candidate (46.53%) than chance, though this proportion was not significantly different from 50%, $\chi^2(1) = 0.36$, $p = .551$, Cohen's $h = 0.10$.

In addition, most participants in our study (70.50%) indicated that they were interested in looking at participants' social media information. We added the interaction between participants' interest and social media photo type as a predictor into the original logistic regression model. The interaction effect did not significantly predict participants' choice in the hiring task, $b = 0.28$, $SE = 0.67$, 95% CI [−1.04, 1.59], $z = 0.41$, $p = .682$, odds ratio = 1.32. Thus, regardless of participants' reported interest, or lack thereof, in taking a look at job candidates' social media information, seeing self-sexualized photos (vs. semi-professional photos) of candidates on social media decreased participants' likelihood of hiring the female candidate.

Study 3 provides a particularly strong test of our hypothesis, showing that the sexy social media photo penalty against female candidates holds even for candidates with clearly exceptional qualifications. In addition, Study 3 addresses the concern that results obtained in Studies 1a-2 merely reflects an artifact of the within-subjects design. Using the between-subjects design, Study 3 replicates the finding that self-sexualized photos, compared with semi-professional photos, decreased the likelihood of female candidates being selected for the position. Interestingly, we also found that the majority of the participants were interested in looking at candidates' social media information when making professional selection decisions, which is in line with research showing that recruiters commonly search for candidates on social media in the recruitment process (Kluemper, Mitra, & Wang, 2016; Zhang et al., 2020).

5. Meta-analysis

Considering the similarities across Studies 1a-3, we performed a meta-analysis. The meta-analysis involves data from all studies that have been conducted to test the hypothesis that sexy social media photos disproportionately penalize female candidates in the professional selection process. By performing the meta-analysis, we aimed to obtain a more precise estimate of the magnitude of the effect of self-sexualized photos, compared with semi-professional photos, on participants' likelihood of choosing female (vs. male) candidates in the professional selection process. Note that there are also differences across Studies 1a-3, including, for example, differences in the study populations (i.e., college-aged students from US vs. China vs. adults with hiring experience), decision-making context (i.e., evaluating candidates for a scholarship vs. a junior consultant position), and candidate qualifications (i. e., meeting requirements vs. being unambiguously qualified). This meta-analysis also allowed us to evaluate the heterogeneity of the sexy social media photo penalty against female candidates across studies. That is, to what extent does the effect of photo type vary across studies?

5.1. Method

5.1.1. Data analytic strategy

The meta-analysis focused on the effect of self-sexualized photos, compared with semi-professional photos on participants' likelihood of choosing female (vs. male) candidates. Accordingly, the meta-analysis included all available data except from Study 2 where some participants saw photos of candidates eating or exercising on the non-sexual photo trial. Thus, the final sample sizes for the meta-analysis were as follows: Studies 1a ($N = 184$), 1b ($N = 69$), 2 ($n = 121$) and 3 ($N = 200$).

We restructured the data so that for Studies 1a-2, each participant had two entries (one for the semi-professional photo trial and one for the self-sexualized photo trial). For Study 3, each participant had only one entry (either for the semi-professional photo trial or for the self-

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[4] After participants made their decision, we also explored their predictions about candidates' future performance as an employee. These data are the focus of a separate manuscript and are not discussed further here.

sexualized photo trial). We used multilevel logistic regression modeling to account for the fact that data were nested within participants and within study. In the model, we entered photo type (self-sexualized vs. semi-professional) as a fixed effect. We also added study as a random factor (Rosenthal & Dimatteo, 2000) and allowed the effect of photo type to vary across studies.[5] This model allowed us to estimate the aggregated (weighted) effect size of photo type across studies, represented with the odds ratio. An odds ratio smaller than one indicates that self-sexualized photos decreased the likelihood of female candidates being selected, compared with semi-professional photos. In contrast, an odds ratio greater than one indicates that the former increased the likelihood of female candidates being selected, compared with the latter. Odds ratios closer to one indicate smaller effect sizes.

Lastly, our model also allowed us to empirically test whether the effect of photo type observed across studies varied more than what one would expect by chance. Based on the recommendation by Hayes (2006), we ran a Likelihood Ratio Test to examine the significance of the random effect of photo type. The test was conducted by comparing the goodness-of-fit of the full model that allows the effect of photo type to vary across studies, with the goodness-of-fit of the reduced model that does not include this random effect of photo type nested within studies.

5.2. Results and discussion

Fig. 3 shows the effect sizes (in odds ratios) for the effect of photo type (self-sexualized vs. semi-professional) on selecting female vs. male candidates for each individual study and the aggregated effect size across Studies 1a-3. Across all studies, and consistent with our conclusions, results of the multilevel logistic regression model revealed a statistically significant effect of photo type. Specifically, self-sexualized photos, compared with semi-professional photos, significantly decreased the likelihood of female candidates being selected, $b = -1.71$, $SE = 0.15$, 95% CI $[-2.00, -1.42]$, $z = -11.52$, $p < .001$, odds ratio $= 0.18$. Importantly, the effect of photo type did not vary significantly across studies more than expected by chance (likelihood ratio test; $\chi^2(1) = 0.002$, $p = .966$). To further examine whether the effect of photo type varied across studies, we reran our meta-analysis, but this time, we also added study as a fixed predictor, along with photo type, and their interaction. Consistent with our conclusions, the interaction effect of photo type and study was not statistically significant ($\chi^2(3) = 4.54$, $p = .209$).

6. General discussion

Recruiters increasingly research candidates' social media accounts in attempts to gain more information about them (Kluemper et al., 2016; Zhang et al., 2020). The present research shows that social media information can open the door to gender bias in professional selection decisions, disproportionately penalizing female candidates. Across four studies ($N = 813$), self-sexualized photos of candidates significantly decreased the likelihood of selecting female candidates for a desirable scholarship (Studies 1a-1b) or a job position (Studies 2–3), compared with semi-professional photos, or other non-sexual photos unrelated to work. This sexy social media photo penalty against female candidates occurred even for candidates with unambiguously strong qualifications (Study 3). Indeed, viewing self-sexualized photos decreased the likelihood of selecting a female candidate by 28% to 41%. Attesting to the robustness of the finding, a meta-analysis of the results from Studies 1a-3

showed that the effect of self-sexualized social media photos (vs. semi-professional photos) on participants' hiring decisions did not vary significantly across studies. Additionally, exploratory analyses showed that the result was generalizable across participants of different genders, races, and self-reported endorsement of sexual double standards, as well as across different sets of experimental stimuli (see *Supplemental Materials* for details).

These results identify a new route by which social media introduces gender biases in the professional selection process. Social media has been viewed as potentially leveling the playing field, allowing individuals from underrepresented groups to gain access to areas that have been out of reach (Choi & Shin, 2017; de Choudhury, Jhaver, Sugar, & Weber, 2016). Here, we show how biases can emerge as a result of the confluence of two social media practices: candidates' social media activity tailored for personal and social functions and decision makers' reliance on social media to gain a more comprehensive representation of candidates. Unfortunately, and perhaps unwittingly, the confluence of these two practices, both on the part of decision makers and of candidates, creates fertile ground for biases in the professional selection process. Moreover, given that young women are likely to face particularly strong social pressures to post sexy photos of themselves (American Psychological Association, 2008; Smolak, Murnen, & Myers, 2014), opportunities for bias are ripe.

6.1. Implications for the study of sexual double standards

The present work links research on sexual double standards with the emerging literature on biases triggered by social media information in the professional selection process. Leveraging the simulated hiring paradigm commonly adopted in the stereotyping and biases literature (Koch et al., 2015), we found consistent and robust evidence of sexual double standards. The findings have theoretical and methodological implications for work on sexual double standards.

Despite the widespread belief of the existence of sexual double standards, empirical studies have generated largely inconsistent results (for review, see Bordini & Sperb, 2013; Crawford & Popp, 2003; Endendijk et al., 2020; Zaikman & Marks, 2017). The inconsistent results have even led some researchers to question whether sexual double standards still exist and that perhaps they are a cultural illusion (Marks & Fraley, 2005). It has also led to calls for methodological innovations in the study of sexual double standards (Crawford & Popp, 2003). Even though some studies have obtained results consistent with the belief that traditional sexual double standards still exist (e.g., Boyer & Galupo, 2015; Conley et al., 2013; Jonason & Marks, 2009; Marks et al., 2019), to date, there is limited support for the existence of sexual double standards from studies that adhere to open-science practices (e.g., preregistering hypotheses and methods, making data publicly available) that increase the reproducibility and replicability of findings (Hardwicke et al., 2018; see Endendijk et al., 2020 for an exception).

Given this backdrop, the robustness and consistency of the findings from the preregistered studies is striking and informs theory and research on sexual double standards. In particular, it is worth considering the features of our research design that enabled obtaining consistent and replicable evidence of sexual double standards (Greenwald, 2012). First, our work used social media photos instead of vignettes describing sexual behaviors. Visual stimuli, compared with written, tend to be more potent and evocative, exerting stronger effects on impression formation (Van Der Heide, D'Angelo, & Schumaker, 2012). Visual stimuli activate social categories and associated beliefs, which can color in a bottom-up fashion how people encode, evaluate, and respond to objective information (e.g., Gunaydin, Selcuk, & Zayas, 2017; Pandey & Zayas, 2021). Indeed, in Study 3, even when individuals were given information that clearly signaled the candidates' strong qualifications, the effect of sexy social media photos persisted.

Second, our work asked participants to select the *one* candidate who would be best suited for the desirable scholarship or position. In this

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[5] We originally ran a model where we also included participant as a random factor, allowing the intercept to vary randomly for each participant. But results of the model showed that the variance of the random effect of participant was close to zero. We therefore dropped the random effect of participant and report results of the modified MLM. Dropping the random effect of participant did not influence results of the other effects in the model.
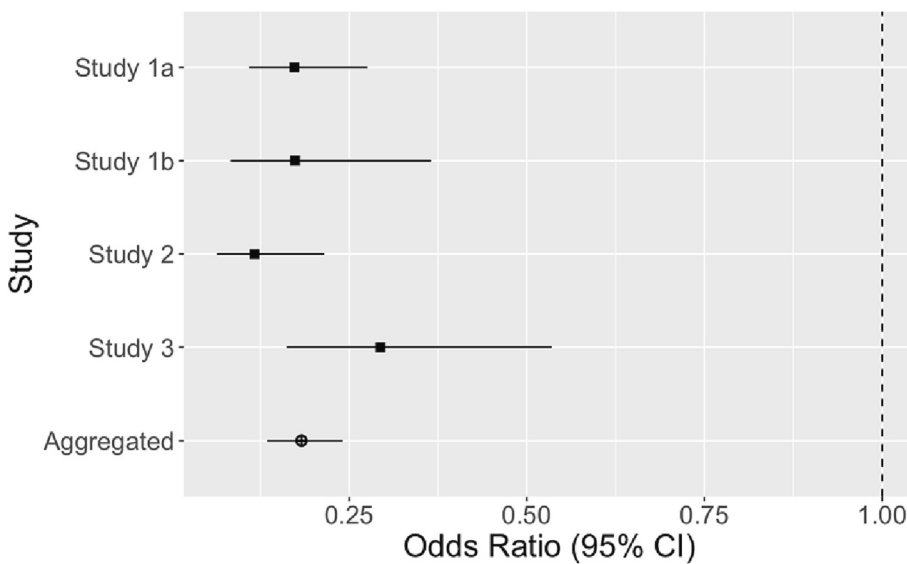
Fig. 3. Effect sizes (odds ratios) of photo type in each individual study (squares) and the aggregated effect size of photo type across studies (circle). Error bars represent 95% confidence intervals for the odds ratios. The odds ratio represents the relative odds of choosing a female (vs. male) candidate on the self-sexualized photo trial as compared to the semi-professional photo trial. The vertical line at odds ratio of 1.00 indicates no effect of photo type on participants' choices. Odds ratios <1 reflect a smaller likelihood of choosing a female (vs. male) candidate in the self-sexualized photo trial as compared to the semi-professional photo trial.

way, our study mimics many real-world decision-making contexts where decision makers decide how to allocate resources between two competing individuals. In contrast, much of past work on sexual double standards has assessed differences in trait evaluations of individuals as assessed with Likert measures. Research on biases has suggested that zero-sum behavioral choices (i.e., one candidate's gain necessitates another candidate's loss) are more likely to reveal biases, while non-zero-sum evaluations may show more egalitarian or equitable preferences (Biernat & Vescio, 2002; Hodson, Dovidio, & Gaertner, 2002; Norton, Vandello, & Darley, 2004; Pearson, Dovidio, & Gaertner, 2009; Uhlmann & Cohen, 2005). The combination of visual stimuli and zero-sum response options in making consequential decisions may have contributed to the consistent and robust demonstrations of sexual double standards reported in the present paper. In this way, the present research sheds light on when and under what circumstances sexual double standards may arise in daily life.

6.2. What are the potential mechanisms of the sexy social media photo penalty?

Our work is grounded in the literature on sexual double standards, such that overt sexual behaviors are perceived as more congruent with the sexual script of men than that of women. From this perspective, female candidates with sexy social media photos should be penalized more for violating their sexual script, compared with male candidates with such photos. Interestingly, in our studies, the sexy social media photo penalty was observed for both men and women, and even among participants who explicitly endorsed egalitarian beliefs. The robustness of the findings suggests that the processes underlying the sexy social media photo penalty may operate implicitly — i.e., without people being aware of holding such biases—and possibly circumventing people's more deliberate egalitarian beliefs. Indeed, beliefs about the appropriateness of women's overt sexual behaviors may be held at a societal level and influenced by the normative context (Bordini & Sperb, 2013; Gómez-Berrocal, Moyano, Álvarez-Muelas, & Sierra, 2022), affecting even individuals who do not personally endorse sexual double standards.

But what inferences are decision makers making when judging female (vs. male) candidates who post sexy social media photos? Even though our pilot testing ensured that male and female candidates were similar on attractiveness and likeability, they may have been evaluated differently on other important traits, abilities, and moral character. Such a possibility would be in line with the stereotype content model (SCM; Cuddy, Fiske, & Glick, 2008; Fiske, Cuddy, & Glick, 2007) that posits two dimensions on which others are evaluated — competence and warmth. From an SCM framework, women are typically judged as being low on competence and high on warmth (Fiske, Cuddy, Glick, & Xu, 2018). Thus, to the extent that people hold such ambivalent attitudes towards women, the presence of negative information (e.g., sexy social media photos) may be particularly problematic for women, leading to harsher judgments, as compared to men towards whom people hold more consistent, univalent attitudes (Cuddy et al., 2004, 2008). Still, some of the present findings are not in line with SCM, which raises some doubts about its suitability as an explanatory framework for our findings. Specifically, across all studies, in the semi-professional condition, decision makers favored the female candidate, consistent with a female hiring advantage identified in other work (e.g., Williams & Ceci, 2015).

In considering other potential mechanisms, sexy social media photos may have led to differential inferences about female and male candidates' self-esteem and self-worth. Indeed, for other sexual behaviors, such as engaging in casual sex, people infer that women (but not men) have low self-esteem (Krems, Ko, Moon, & Varnum, 2021), which is generally viewed as a less desirable personality characteristic, including in the work domain (Baumeister, Campbell, Krueger, & Vohs, 2003). Along these lines, perceivers may infer that women have different goals than men for posting sexy photos (e.g., attracting mates vs. displaying strength) (Abbey, Cozzarelli, McLaughlin, & Harnish, 1987; Lindgren, Parkhill, George, & Hendershot, 2008), which may give rise to the observed sexy social media photo penalty. Relatedly, given that Study 2 found *some* penalty for female (vs. male) candidates who were shown eating, it is possible that behaviors that signal indulgence or lack of self-control may lead to particularly negative evaluations for women.

The sexy social media photo penalty against female candidates may also be driven because schemas representing the sexualization of women are more accessible, as compared to men (Daniels & Zurbriggen, 2016; Grabe, Hyde, & Lindberg, 2007; Loughnan & Pacilli, 2014). Schema consistent information draws more attention, activates memory structures that are more developed around this category, which ultimately brings to mind more information in greater vividness, that then leads to stronger effects on social judgments (Bodenhausen & Lichtenstein, 1987; Higgins, 1996; Judd & Kulik, 1980).

Lastly, it is also possible that these effects are not mediated by differences in trait judgments. Some research finds that well-practiced biases can operate in the absence of activating any target-specific stereotypes and trait judgments (Amodio & Devine, 2006; Crandall, Bahns, Warner, & Schaller, 2011; Jampol & Zayas, 2021). Regardless, future

work should examine possible mechanisms for the observed sexy social media photo penalty against female candidates, by assessing how sexy photos shape judgments of traits, abilities, and moral character, as well as assessing the potential differential knowledge structures associated with stereotypes about women and men presented in a self-sexualized way.

6.3. Implications for organizations and individuals

Raising awareness of biases is the first step towards overcoming it. The present work has several practical implications for reducing or eliminating bias in professional selection decisions. Organizations could benefit by developing clear guidelines for decision makers about social media use during the processional selection process. Encouraging "self-blinding" (i.e., intentionally restricting the information one sees to make more objective decisions; Fath, Larrick, Soll, & Zhu, 2021), along with educating decision makers that social media content does not predict candidates' actual job performance (Van Iddekinge et al., 2016; Woods et al., 2020; Zhang et al., 2020), might lessen biases in professional selection decisions. Social media companies could also enhance their privacy protection features. For example, although social media platforms have enabled privacy protection settings that allow users to limit the accessibility of their posted content to targeted audience only, they are usually not turned on by default (Ho, Maiga, & Aïmeur, 2009). Making privacy protection settings a default can more effectively limit unknown others' access to social media information and minimize potential biases (Jamal, Maier, & Sunder, 2005; Johnson, Bellman, & Lohse, 2002).

From the perspective of individuals, past work has suggested that people tend to underestimate or overlook how their social media accounts could influence how others perceive them (Hofstetter, Rüppell, & John, 2017; Krämer et al., 2017). Importantly, our work further demonstrates that social media profiles, built primarily to bolster social connections, could negatively impact people's professional outcomes. The current work suggests that candidates seeking professional advancement, especially female candidates, may be particularly affected by the content available on their social media accounts. With more accumulating evidence suggesting that various personal information on one's social media profiles may trigger biases, penalizing individuals from certain social groups (e.g., Acquisti & Fong, 2020; Pu, Roth, Thatcher, Nittrouer, & Hebl, 2022), schools might consider developing educational programs to inform students about the potential negative consequences of social media use for academic and professional advancement.

6.4. A female hiring advantage

A consistent finding across all studies was that in the semi-professional context, female candidates were favored over male candidates—a female hiring advantage that ranged from 2:1 to 5:1. Although one may find this result surprising given research documenting gender biases in the workplace (Davison & Burke, 2000; Koch et al., 2015), it is consistent with recent research documenting a female hiring advantage (Chan & Wang, 2018; Fernandez & Abraham, 2011; Glass & Minnotte, 2010; Shen & Shoda, 2021; Williams & Ceci, 2015; Zhang et al., 2020).

Given these mixed findings, researchers are increasingly investigating the factors that would influence the effect of candidate gender in the professional selection process (Chan & Wang, 2018; Ruisch, Lewis, & Ferguson, 2022). Pilot work by Ruisch et al. (accepted in principle), for example, suggests that female hiring advantage may be more likely when qualifications of the candidates are exceptional, rather than ambiguous. Indeed, in our studies, candidates were described as having strong qualifications. For example, in Studies 1a-2, participants were told that the candidates under consideration had made it to the final round of assessment; in this case, candidates' strong qualifications were

implied. In Study 3, participants evaluated the CVs of two candidates with clearly strong qualifications. Evaluating candidates with strong qualifications might explain why participants in our study favored female candidates on the non-sexual photo trial.

Having young adults as evaluation targets may be another factor for why our results show that female candidates were favored over male candidates when semi-professional photos were presented. Research by Shen and Shoda (2021), for instance, found that participants showed a preference for female candidates when evaluation targets were young (i.e., under 35 years old) but not older. In the current research, we chose young adults as evaluation targets, given that young adults are more active social media users (Pew Research Center, 2021), more likely to post "sexy" photos online (Daniels & Zurbriggen, 2016), and are entering the job market.

Future research should examine what candidate-related characteristics, such as qualification or age, would be associated with preferences for vs. biases against women in the professional selection process. But critically, the current work focused on how self-sexualized photos, compared with semi-professional photos, would differentially penalize female vs. male candidates. Our results clearly demonstrate that the female hiring advantage observed for semi-professional social media photographs is eliminated or even completely reverses towards a male hiring advantage when candidates' sexy social media photographs are available.

6.5. Reflections on the experimental paradigm

The simulated hiring task is a commonly adopted paradigm in research on selection biases (e.g., Cuddy et al., 2004; Heilman & Okimoto, 2008; Moss-Racusin et al., 2012; Williams & Ceci, 2015; for review, see Davison & Burke, 2000; Koch et al., 2015). It allows researchers to control for alternative factors that could influence selection outcomes, such as candidates' qualifications. Although future work may benefit from examining for a sexy social media photo penalty against women by analyzing real-world data, the present work using a well-controlled experimental paradigm provides important causal evidence (Bowen, Swim, & Jacobs, 2000; Koch et al., 2015; Roth, Purvis, & Bobko, 2012).

Still, one may question the ecological validity of the simulated hiring paradigm and doubt the generalizability of results obtained through this task to the real world. One concern may be that in real-world professional selection processes, decision makers have more information regarding the candidates, which might dilute the effect of the sexy social media photograph. For instance, candidates' interview performance, which typically occurs later in the selection process, may counteract the effect of social media photos. Although this possibility needs to be explored, the adopted simulated hiring task mimics real-life recruitment procedures where recruiters make initial decisions about to whom to extend an interview invitation based on available information. The present findings suggest that social media information can bias decision makers' selections such that candidates may be screened out in the early stage of assessment for what they post on social media and denied opportunities to further demonstrate their professional abilities.

One suggestion for increasing the ecological validity of the present work is to ask decision makers to provide a rationale for their decisions. Indeed, real-world professional selection decisions often involve discussions about the rationale for preferring one candidate over another. Doing so could also shed light on the potential mechanisms of the sexy social media photo penalty.

Additionally, one question unanswered by the current study is, whether the channel by which self-sexualized photos became available to decision makers matters. We chose to focus on the impact of social media photos because social media platforms are an important channel by which personal information can become available in the professional selection process. Still, it is not known whether the penalty arises because decision makers evaluate the candidates negatively for their

sexy photo or for their poor judgment in posting it. Would the penalty still occur if the photo was posted by another person (not the candidate themselves) or was a private photo that somehow became available? Future research may examine more closely the circumstances under which the sexy photos become available and how they might influence the evaluation of candidates in the professional selection process.

7. Conclusion

An unintended consequence of the rise in social media use is that it is playing an increasingly important role in the professional selection process. Our research finds a crucial context where a sexual double standard arises: having "sexy" photos of oneself on social media is particularly penalizing for female candidates compared to male candidates. Raising people's awareness about social media as a source of biases and the manifestation of a sexual double standard in the professional selection process can inform interventions and practices to minimize such biases.

Open practices

The procedures, sample size, exclusion criteria, and data analyses plans for Study 1a, Study 2 and Study 3 were preregistered on OSF, prior to data collection.

- Experiment 1a: https://osf.io/c3vra/?view_only=4d5cede7ec704c 34984aa7c2d3237822
- Experiment 2: https://osf.io/dxcp4/?view_only=3068bef522cb4 5e3bec6cc2cc75a1001
- Experiment 3: https://osf.io/nh2gp/?view_only=16cca4521bb944 2599fb39b79d50f72e

All measures collected, including those unreported in the article, are detailed in full in our preregistrations and the *Supplemental Materials*. Deidentified data and the data-analysis script are posted on OSF (htt ps://osf.io/qc34r/?view_only=1dbc94afb9eb46ae9a8a6dcee2bf6f07).

Author note

Declaration of Competing Interest

Data availability

Appendix A. Supplementary data

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