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ORIGINAL PAPER

Sexual orientation stereotypes and job candidate screening: why gay is (mostly) OK

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Abstract

To explain the conflicting findings on hiring discrimination against applicants in a same-sex marriage, we explore the perceptual drivers behind employers' evaluations. Therefore, we conduct a vignette experiment among recruiters, for which we test systematically selected stereotypes from earlier studies. We find causal evidence for distinct effects of same-sex marriage on candidate perceptions and interview probabilities. In particular, interview probabilities are positively (negatively) associated with the stereotype of women (men) married to a same-sex partner as being more (less) pleasant to work with compared to candidates in a different-sex marriage. In addition, interview chances are negatively associated with the stereotype of candidates in a same-sex marriage as being more outspoken. Furthermore, our data align well with the idea of a concentrated discrimination account, whereby a minority of employers who hold negative attitudes towards individuals in same-sex marriages are responsible for most instances of hiring discrimination.

Keywords Sexual orientation · Signalling theory · Statistical discrimination · Taste-based discrimination · Hiring experiment

JEL Classification C38 Classification Methods, Cluster analysis, Principal components and factor models · J12 Marriage, Marital dissolution, Family structure and domestic abuse · J71 Discrimination

1 Introduction

Since the first empirical investigation of sexual orientation–based discrimination in economics (Badgett 1995), the socioeconomic outcomes of same-sex couples have, in general, improved globally (Badgett et al. 2021; Drydakis 2021; OECD 2020).

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The scientific investigation of the labour market success of non-heterosexual individuals has branched into both a supply-side (Burn and Martell 2020) and a demand-side research tradition (Burn 2018, 2020). Given that differences in labour market outcomes between sexual majority and minority individuals appear nowadays to be mainly driven by the demand side of the labour market (Fric 2017), it is necessary to further investigate labour market discrimination.

As evidenced in earlier research, predominantly centred around gay men and lesbian women, sexual minorities are susceptible to hiring discrimination already in the earliest stages of the recruitment process. Indeed, both field (Hebl et al. 2002; Drydakis 2009, 2015; Tilcsik 2011; Hammarstedt et al. 2015; Jepsen and Jepsen 2015; Laurent and Mihoubi 2017; Patacchini et al. 2015) and laboratory studies (Horvath and Ryan 2003; Singletary and Hebl 2009; Everly et al 2016) have found evidence of such discriminatory treatment in the application process. For example, the first large-scale correspondence experiment on discrimination against openly gay men across the United States indicated that gay men were 40% less likely to be offered a job interview compared to their heterosexual counterpart (Tilcsik 2011). A laboratory study among 236 predominately White participants in the United States demonstrated a more nuanced image as gay men and lesbian women were evaluated more negatively than heterosexual men, but more positively than heterosexual women (Horvath and Ryan 2003). However, a substantial number of studies, again in both field (Bailey et al. 2013; Baert 2014; Patacchini et al. 2015; Acquisti and Fong 2020) and lab settings (Nadler and Kufahl 2014; Niedlich and Steffens 2015; Baert 2018a; Niedlich et al. 2022), have found no such evidence. In general, two meta-analysis on this mixed evidence from field experiments in OECD countries conclude that gay and lesbian job candidates receive on average 35 to 40 percent fewer positive reactions than heterosexual candidates (Flage 2020; Lippens et al. 2023). However, it must be noted that this unequal treatment varies between multiple contextual factors such as the occupational requirements, the gender of the applicant, and the country of employment. More concretely, the level of discrimination seems to be higher for gay men compared to lesbian women, in low-skilled (versus high-skilled) occupations, and in European countries compared to the United States. In the study of sexual minorities, bisexual individuals are currently underrepresented because it is unclear whether they are consistently perceived or 'read' as sexual minorities in the labour market, especially when they have different-sex partners (Badgett et al. 2024). Nevertheless, a vignette experiment by Arena and colleagues (2017) shows that employers favour gay and lesbian individuals over bisexual ones. Similarly, Parnell and colleagues (2012) find that bisexual workers systematically report more career barriers than their gay and lesbian counterparts.

To tackle potential hiring discrimination, it is crucial to develop insights into the stereotypes about candidates in same-sex relationships that drive potential differences in their hiring probabilities compared to heterosexual candidates (Fric 2017). The empirical investigation of these driving stereotypes is challenging and necessitates an in-depth analysis for three reasons. First, our own review of the multidisciplinary peer-reviewed literature (Appendix Table 1) yielded no less than 70 characteristics associated with homosexuality—a sexual orientation featuring same-sex partners that has been studied thoroughly. The sheer number of such characteristics

is astonishing and raises questions regarding (1) the attributed relevance of each characteristic in contemporary hiring processes and (2) the complex detailed image (some) employers might have of candidates in same-sex marriages. Second, thus far we have mostly discussed individuals in same-sex marriages as one homogenous group. However, treating diverse groups of sexual minorities as one homogenous group could lead to incorrect conclusions about their labour market outcomes (Mize 2016). For instance, researchers have found heterogeneity in both the hiring chances and attributes associated with gay men and lesbian women. Different patterns of perceptions could be in play when explaining differences in the hiring probabilities of individuals in same-sex marriages and, consequently, a 'one size fits all format' of policy-making might be undesirable when supporting sexual minorities. Third, in addition to the large number of perceptions and the potential differences between men and women in same-sex relationships, the perception puzzle is further complicated by the mixed valence of perceptions. In fact, both positive and negative traits have been associated with homosexuality (see Appendix Table 1). The latter may suggest that candidates' hiring probabilities might be the result of an interplay between both positive and negative candidate perceptions associated with sexual orientations.

Given the current state of the literature, instead of simply providing yet another data point on the instances of hiring discrimination against sexual minorities, research calls for a deeper understanding of the phenomenon—and its mixed findings (Neumark 2018). Through a vignette experiment among real-life recruiters, equally distributed between the United Kingdom and the United States, we contribute to the development of such an understanding by answering four research questions. First, we reply to the question 'What are the average treatment effects of same-sex marriage for (1) men and (2) women on their hiring probability?' Second and most importantly, we question 'What are the average treatment effects of a same-sex marriages for (1) men and (2) women on candidate perceptions?' and 'What are the indirect associations between same-sex relations and hiring probability via candidate perceptions?' to gain insights in the driving stereotypes. Fourth and final, we answer the question 'For which (i) candidate, (ii) job, and (iii) recruiter are the effects of a same-sex marriages on hiring probability heterogeneous?'.

By doing this, we contribute to the literature in three ways. First and foremost, we conduct an empirical and causal test on the stereotyping of men and women in same-sex marriages within one framework. Moreover, as a prerequisite to accomplishing this, we additionally contribute to the literature by reviewing and structuring the literature on potential stereotypes. As a second broader contribution, we go beyond a traditional investigation of moderators, i.e. variables that affect the strength or the direction of the relationship between an independent variable and a dependent variable (Hayes 2017). In addition to testing the candidate, job, and recruiter-side variables that strengthen or attenuate discrimination, we explore the idea of a concentrated discrimination account, whereby a minority of employers, who privately hold negative attitudes towards sexual minorities, are responsible for most instances of hiring discrimination. A third and final contribution lies in the data collection that took place in two similar yet different Anglo-Saxon countries (i.e. the United Kingdom and the United States) which allows us to explore possible culturally sensitive

differences in the hireability of non-heterosexual candidates. For example, Adamcyzk and Pitt (2009) discovered cross-national variation in the public opinion about homosexuality which could explain stronger penalties in some countries.

2 Theory

As described in the previous section, mixed results were found in the literature regarding the hiring chances of non-heterosexual candidates. However, as two meta-analyses indicate an overall negative impact of none-heterosexual orientations on the candidate's hiring probability (Flage 2020; Lippens et al. 2023), we hypothesise that for both men and women, same-sex marriages will negatively affect the candidate's hiring chances.

H1: Same-sex marriages have a negative effect on hiring probabilities for both men and women.

Next, from a theoretical perspective, the two seminal (economic) theories of taste-based (Becker 1957) and levels-based statistical discrimination (Phelps 1972; Arrow 1973) can explain hiring discrimination against individuals in a non-heterosexual marriage.[1] First, according to the theory of taste-based discrimination, employers may be prejudiced against sexual minorities and might, therefore, expect disutility in collaboration with such candidates themselves or from colleagues and clients (Bodvarsson and Partridge 2001). Consequently, prejudiced employers are, to some degree, willing to make sacrifices to avoid collaboration with employees. Specifically, they would rather hire a less competent heterosexual candidate than a skilled candidate in a same-sex marriage. Based on the theory of taste-based discrimination, we hypothesise that sexual orientations and hiring probabilities are negatively and indirectly associated via employers' prejudices regarding collaborations between sexual minority candidates and themselves, colleagues, and/or clients. By doing so, we test candidate perceptions as potential mediators (Hayes 2017): variables that explain the mechanism through which independent variables (i.e. same-sex marriage) influences a dependent variable (i.e. hiring probabilities).

H2A: Same-sex marriages have a negative effect on the employer's prejudices regarding collaborations.

[1] Note that multiple biases from other academic disciplines align to some extend with taste-based or statistical discrimination. On the one hand, biases such as the in-group and out-group bias rely on the personal preferences for certain groups (Bertrand and Duflo 2017) which is also the starting point for taste-based discrimination. On the other hand, some biases have more commonalities with statistical based discrimination such as the halo-effect for example as this bias occurs when one wants to avoid uncertainty based on (in)accurate beliefs (Bello 2004). Nevertheless, our study focuses on the two theories of hiring discrimination that are rooted in the economic framework: taste based and statistical based discrimination (Neumark 2018).

H2B: Same-sex marriages are negatively and indirectly associated with hiring probabilities through prejudices regarding collaborations.

Second, the theory of levels-based statistical discrimination provides a more rational explanation for discrimination against candidates in same-sex marriages. The starting point of this theory is that employment decisions are made under uncertainty. After all, employers do not possess perfect information on individual candidates. To aid decision-making under uncertainty, employers apply their general productivity beliefs of candidates in same-sex relationships as a group to the individual candidate. Negative productivity beliefs concerning minority groups then create advantages for heterosexual candidates and this, therefore, results in different hiring probabilities for individual candidates from both groups. Moreover, these beliefs need not necessarily match reality to lead to unequal treatment according to the theory of inaccurate statistical discrimination (Bohren et al. 2019). Following the theory of levels-based statistical discrimination, we hypothesise that same-sex marriages and hiring probabilities are negatively and indirectly associated via employers' productivity beliefs about candidates.[2]

H3A: Same-sex marriages have a negative effect on the employer's productivity beliefs about candidates.
H3B: Same-sex marriages are negatively and indirectly associated with hiring probabilities through productivity beliefs.

Both the theories of taste-based and levels-based statistical discrimination, to some extent, rely on explaining hiring discrimination through the stereotypes which employers relate to the candidate's relationship status. Specifically, stereotypes regard a socially shared set of (un)conscious and (in)accurate beliefs about characteristics of members of a social group such as sexual minorities (Judd and Park 1993; Banaji 2002). Employers could use such stereotypes as cognitive shortcuts in selection decisions since they simplify and justify social reality (Fiske 1998). Taken together, discrimination, prejudice, and stereotypes should be interpreted as related but distinct concepts (Fiske 1998). More concretely stereotypes represent beliefs about certain characteristics of group members (i.e. the cognitive component), prejudice reflects the emotional reaction to those stereotypes (i.e. the affective component), and discrimination refers to actions based on those stereotypes (i.e. the behavioural component). Indeed, many experiments indicate that stereotyping may affect hiring decisions, and subsequently, result in hiring discrimination against members of different social groups (Van Belle et al. 2018; Sterkens et al. 2021; Van Borm et al. 2021).

[2] As remarked by one of the reviewers, stereotypes, and therefore statistical discrimination, could vary at the intersection of gender and sexual orientation. This could also explain the disadvantage of gay men compared to lesbian women (Flage 2020).

3 Data

To make these contributions, we conducted a survey as a pre-study which was employed to set up a vignette experiment at a later stage. Vignette studies are controlled experiments that integrate experimental manipulations in a survey set-up. They are commonly employed to analyse human decision-making in the context of hiring decisions (Van Belle et al. 2018; Sterkens et al. 2021; Van Borm et al. 2021). In such experiments, participants evaluate fictitious candidate profiles (vignettes) that vary across several characteristics (vignette dimensions, for instance 'job-relevant experience') on a predetermined number of levels (vignette levels, for instance, 'yes, no').

Vignette experiments could be favoured over administrative data when studying hiring discrimination because they enable a causal interpretation of candidate manipulations—whereas administrative worker data could vary by confounding characteristics. Moreover, compared to correspondence experiments—the golden standard for measuring hiring discrimination (Neumark 2018)—vignettes facilitate the surveying of participants' thought processes behind decisions. Hence, vignettes are more suitable for testing explanations for hiring discrimination.

In contrast to prior controlled experiments on hiring discrimination against sexual minority candidates, which primarily featured student populations (Pichler et al. 2010; Binder and Ward 2016; Baert 2018a), our study complements a small body of controlled experiments among genuine HR professionals. Compared to the two vignette experiments featuring HR professionals (Van Hoye and Lievens 2003; Barron 2009), our experiment is innovative because we not only measure hireability but also gauge the candidate perceptions related to candidates in a same-sex marriage. Although controlled experiments allow researchers to isolate variables and elaborately survey their participants, they are particularly susceptible to social desirability bias. Throughout Section 3, we discuss measures taken to limit such bias such as multiple manipulations (SubSection 3.2) and the administration of a social desirability scale (SubSection 3.4). Finally, we discuss this limitation in Section 5.

3.1 Pre-study

To investigate the stereotyping function of same-sex marriages and the explanatory potential of stereotypes for hiring probabilities, we reviewed the literature for potential stereotypes emitted by gay job candidates.[3] More concretely, we searched the Web of Science international database for relevant studies published in economic, social, psychological, or interdisciplinary journals between 1965 and 2021. The keywords used included various synonyms and alternative combinations of the

[3] The pre-study examines perceptions regarding gay men and lesbian women since the vignette experiment was initially targeted at gay and heterosexual candidates. However, a reviewer of the initial version of the manuscript correctly noted that our vignette experiment deals rather with same-sex couples (and, thus, by extension also other sexual minorities) by which the congruence between the pre-study and the vignette experiment is not perfect.

following search term: gay lesbian stigma (e.g. signals homosexuality). Based on the references in and to the studies found, additional studies were selected. In total, we identified 70 characteristics (see Appendix Table 1). However, presenting each of these candidate perceptions as items to recruiters would have put unreasonable cognitive demands on participants. As Bethlehem and Biffignandi (2012) explain, research requiring excessive cognitive effort jeopardises both the response rate and data quality due to respondents' satisficing tendencies (i.e. the 'less attentive answering of items').

Consequently, we conducted a pre-study in which we applied item reduction techniques to filter out the stereotypes that fit three criteria: applicability, relevance to the work context, and limited overlap. First, when reviewing the literature, we traced back studies as early as 1965 but limited ourselves to the investigation of those stereotypes applicable to homosexuality as perceived by contemporary recruiters. Second, although the identified stereotypes span a broad range of characteristics, not all of these characteristics are necessarily relevant to the work context. For example, participating recruiters indicated that non-conformism and the need for security are fairly irrelevant. Third, we retained those stereotypes that showed a limited overlap with one another because research on social cognition has evidenced that there are dimensions underlying stereotypes of homosexuality (Fiske et al. 2007). Therefore, we excluded passiveness as a stereotype as we already took the opposite stereotype, namely assertiveness, into account.

3.1.1 Data collection

We conducted our pre-study in the form of an online survey and followed an approach comparable to the Sexual Prejudice Scale (Chonody 2013). Employing the services of the online panel service Prolific, 50 British and 50 American individuals experienced in making recruitment decisions (hereafter referred to as recruiters) completed our pre-study's four sets of questions.[4] In the first three separated batteries, recruiters indicated the degree to which they agreed with 70 statements concerning the characteristics of (1) the average gay man, (2) the average lesbian woman, and (3) the relevance of each characteristic to a hiring decision. For example, approachability, eccentricity, group orientation, honesty, intelligence, and social competence were assessed—the full list is presented in Appendix Table 1—employing a 6-point response scale, ranging from strongly disagree (score 1) to strongly agree (score 6).[5] The fourth battery was used to register the participant's sociodemographics: gender (man, woman, non-binary or third gender, prefer not to say); age in years (numbers); nationality (British, American, other); level of education (no

[4] By using Prolific, we could reach motivated and suitable participants based on the characteristics they entered when registering on this platform. In this case, we only invited participants with the American or British nationality who indicated that they have experience with hiring decisions (i.e. they have been responsible for hiring job candidates).

[5] Our 6-point response scale did not contain a neutral option, thus forcing respondents to express (dis) agreement with statements. This is common practice to avoid social desirability bias when measuring socially-sensitive attitudes (Chonody 2013).

diploma, high school, bachelor, masters, PhD); and sexual orientation (lesbian, gay, bisexual, heterosexual, other, prefer not to say).

3.1.2 Stereotype elimination procedure

The item reduction process consisted of four subsequent phases—the results of which are presented in the fourth column of Appendix Table 1. In the first phase, we strictly filtered out stereotypes based on descriptives. More concretely, items that were, on average, perceived by recruiters as irrelevant to a hiring decision or inapplicable to gay men or lesbian women (i.e. an average of below 3) were dropped.[6] Hence, we eliminated 23 items. In this step, we dropped a further four items because they were close approximations of overall hireability and, therefore, of the hiring decision to be made in the experiment (for example 'effective performance of job-related tasks').

Next, the second phase of the elimination procedure involved a re-examination of the item pool following factor analyses on the evaluations of stereotypes for gay men and lesbian women separately. Here, we dropped two items because they did not fit the factor structures emerging for either gay men or lesbian women (i.e. 'non-conformist' had a factor loading lower than the conservative threshold of 0.35 which is used to determine statistically meaningful factors; Comrey & Lee 1992) or were empirical opposites of other stereotypes (i.e. 'passive' was dropped in exchange for 'assertive').

In the third phase of the eliminations, we discussed emerging themes within the stereotype factors from the previous step ('factor interpretation') and based the selection on item interpretations and their underlying correlations. Specifically, 17 original items were summarised in five newly generated items ('empathy', 'creativity', 'loving and soft', 'self-awareness', and 'emotionality') that fit the factor structures. Furthermore, after a re-examination of the correlation matrixes, we dropped another four items because they showed a substantial overlap with other stereotypes and had limited relevance to the hiring decision (average below 3.250).

In the fourth and final phase, the face validity of each individual item was scrutinised. Consequently, we excluded five more items because, from experiences in the field, these candidate characteristics were less likely to be gauged from the earlier phases of resume screening (e.g. how individualistic a candidate is).

The remaining 20 items were subjected to the evaluation of labour market experts. Based on their input regarding health stigma, we agreed on a reduction of the 70 initial items to the following 21 potential stereotypes of being a gay or lesbian job candidate: social skills, assertiveness, outspokenness, dominance, independence, competitiveness, leadership abilities, team orientation, empathy, loving- and softness of personality, emotional sensitivity, neatness, intelligence, open-mindedness,

[6] Nevertheless, we acknowledge that some of these items might still be relevant in practice. Participating recruiters may agree less strongly with certain statements in our pre-study because they are aware that this could indicate recruitment discrimination which is prohibited by law.

Table 1 Dimensions and levels

Dimensions	Levels
Gender	{man; woman}
Marital status	{married to (male name); married to (female name); married}
Age	{33 years old; 38 years old; 43 years old; 48 years old}
Job experience in the past 5 years	{0 years; 2 years; 5 years}
Foreign language knowledge	{none; French; Spanish}
Professional achievements at previous employer	{none; diversity ambassador; employee of the month}
Extra-curricular activities	{wrestling; gymnastics; tennis; volunteers to distribute food for the local community; volunteers at LGBTQ rights organisation; none}

creativity, talkativeness, honesty, professionalism, self-awareness, career orientation, and current health.

3.2 Vignette design

In our main experiment another batch of recruiters indicated their judgements and perceptions of four fictitious job candidates ('vignettes') who varied, among other characteristics, in their sexual orientation. In total, our profiles consisted of seven dimensions, summarised in Table 1. This multidimensionality serves a threefold purpose. We (i) mimic the complexity of real-life hiring decisions, (ii) enable a causal analysis of candidate-side moderators of hiring probabilities, and (iii) counteract social desirability bias. That is, through multiple manipulations in addition to sexual orientation, the focus of the study remained hidden and recruiters were forced to make trade-offs between dimensions. This, in turn, makes it harder for participants to select candidates in a socially desirable manner (Auspurg and Hinz 2014), thus addressing a recurring point of critique on prior studies (Section 1).

We revealed our candidates' sexual orientation to recruiters through the first two dimensions of the vignettes, namely gender (man, woman) and marital status (married to [male name], married to [female name], married).[7] This implies that our results are only applicable to married same-sex couples as stereotypes related to marriage could be in play. For instance, employers might perceive married candidates as more healthy, reliable, secure, ambitious, and happy, hence giving them an advantage compared to their unmarried counterparts (Etaugh and Malstrom 1981; Rowthorn 2002). Moreover, the marital advantage paradigm suggests that marriage increases to access to economic resources and thus might reduce

[7] The (fe)male names used to indicate their marital partner were (Sarah Adams, Ellen Jones) James Bell and Oliver Smith as these are common names both in the United States and the United Kingdom (Census Bureau 2022; Office for National Statistics 2022; Social Security Administration 2023). We randomly added gender names to avoid combinations of vignettes where multiple candidates were married to equally named partners.

hiring discrimination, something that was confirmed in the context of (un)married transgenders (Liu and Wilkinson 2017). However, such an effect remained absent in an experiment with (un)married lesbian women as single and married lesbian women were equally discriminated in comparison to heterosexual (un) married women (Weichselbaumer 2015). Despite the potential impact of marital status, our operationalisation has the advantage of providing a more unambiguous revelation of sexual orientation compared to earlier experimental manipulations of sexual orientation such as 'involvement in LGBT organisation' (Ahmed et al. 2013; Barron and Hebl 2013; Binder and Ward 2016) or 'reference to LGBT scholarship programme' (Barron 2009). Disclosing an affiliation with an LGBT organisation could bias the results as a meta-analysis of 12 correspondence experiments concerning sexual orientation suggests that unequal treatment is mainly driven by the revelation of an affiliation rather than homosexuality in itself (Lippens et al. 2023). We discuss this point further in SubSection 4.3.

The third dimension revealed the candidate's age in years (33, 38, 43, or 48). To support the ecological validity of the experiment by avoiding overly similar profiles, we randomly adjusted each of the four age levels by adding or subtracting 2 years (Sterkens et al. 2021). Apart from age being a logical element in a job application, previous research findings have been mixed regarding the moderating effect of age on sexual orientation–based discrimination (Drydakis 2009; Baert 2014; Laurent and Mihoubi 2017).

Next, our fourth dimension was relevant job experience in the past 5 years (0 years, 2 years, 5 years). As a positive and significant predictor of candidates' job-related competence (Dokko et al. 2009), experience was another logical addition to ecologically valid candidate profiles. We limited the profiles' experience record to the past 5 years to avoid any unreasonable comparisons of candidates applying to the same vacancy.

As a fifth dimension, we manipulated candidates' language knowledge besides English (None, French, Spanish). Again, mentioning the candidates' language mastery was an ecologically valid addition to the vignettes (Oreopoulos 2011; Sterkens et al. 2021). Furthermore, language mastery may further amplify gay men's and lesbian women's expected stereotyping functions of, for instance, social skills, and outspokenness (Appendix Table 1). The decision to include French and Spanish as levels was based on Looney and Lusin (2019), who found that these languages were popular among Americans.

Similar to the language dimension, our sixth dimension, namely professional achievements at the previous employer (none, diversity ambassador within the organisation, employee of the month award), further underlined our aim to construct ecologically valid candidate profiles. However, in addition to contributing to the construction of solid candidate profiles, the diversity ambassador level enabled methodologically interesting moderation analyses. More specifically, earlier vignette experiments have used involvement in LGBT-related professional activity as a manipulation of candidates' sexual orientation (Tilcsik 2011). Consequently, our experimental data created opportunities to test whether discrimination and stereotyping in more ambiguous manipulations of sexual orientation (via

involvement in diversity-related actions) are comparable to the effects of more straightforward manipulations (via reference to the partner's gender).

The seventh and final dimension of our candidate profiles was extra-curricular activities (wrestling, gymnastics, tennis, volunteering to distribute food for the local community, volunteering at an LGBTQ rights organisation, none) and was developed analogous to earlier vignette experiments (Di Stasio 2014; Van Belle et al. 2018). We chose the different levels containing sports based on their typical gender assignment (Katsarova 2019) such that they reveal the gender (in)congruent behaviours of candidates and may consequently affect recruiters' evaluations and perceptions (Fric 2017). Alternatively, practising sports could serve as a positive signal indicating a healthy candidate (Schulte-Hostedde et al. 2012) and, thus, counteract the potential health stigma surrounding homosexuality. Lastly, the level 'volunteering at an LGBTQ rights organisation' is yet another technique that has been used in prior experiments to manipulate candidates' sexual orientation (Berger and Kelly 1981; Everly et al. 2016). As discussed above, this creates opportunities to compare whether and how the different manipulations of sexual orientation in the literature might affect hiring outcomes and candidate perceptions.

Combined, these manipulations made for a 2 (gender)×3 (marital status)×4 (age)×3 (relevant experience)×3 (languages)×3 (professional achievements)×6 (extra-curricular activities) vignette design. Because it would be unfeasible for recruiters to adequately judge all 3888 vignettes (vignette universe), we provided each participant with one systematically selected subsample of vignettes (decks). Of the 30 decks we constructed, each one consisted out of four different job candidates and was selected using a D-efficiency algorithm (Auspurg and Hinz 2014).[8] This algorithm ensured that the entirety of decks could be analysed with a precision similar to that of the vignette universe and established low-to-zero correlations between the experimental manipulations. Our application of the D-efficiency algorithm resulted in a D-efficiency of 98.494 out of 100 and was, hence, considered successful (Auspurg and Hinz 2014).

3.3 Vacancy design

The experimental assignment required recruiters to evaluate one deck of candidates for one out of twelve fictitious vacancies. We developed these vacancies based on the literature regarding occupational moderators in hiring discrimination against sexual minority candidates. Our vacancy descriptions varied by three such potential moderators, namely gender-type of the occupation (male-dominated, female-dominated, gender-neutral), degree of customer contact (high, low), and diversity statement (present, absent).

According to, among others, Pellegrini and colleagues (2020) and Mishel (2020), gay and heterosexual job candidates are evaluated differently in gender-typed work

[8] An example of a vignette deck is provided in the Appendix.

contexts.[9] To examine whether these propositions hold, we considered a job to be (fe)male-dominated if, according to the United States Department of Labor (2021), at least 80.0% of its incumbents were (wo)men. Likewise, we considered jobs gender-neutral when 45.0 to 55.0% of the incumbents were (wo)men.

Next, applying the theory of taste-based discrimination (Section 2), some employers discriminate against candidates in a same-sex marriage because of their own prejudices or those of the organisation's clientele. In line with this argument, Baert (2014) and Mishel (2020) found that employers are more prone to discriminate against gay candidates in contexts of high customer contact. To identify jobs with high (low) levels of customer contact, we consulted O*NET Online's occupational database and filtered out jobs with the 30.0% highest (lowest) scores for the 'Customer and Personal Service' factor.

Whereas six of the fictitious vacancies contained a diversity statement in their descriptions, the other six did not. Our manipulation, namely the addition of 'As Peterson Inc. maintains an equal opportunities and diversity policy, everyone is encouraged to apply for this position.', was a direct adaptation of a phrase employed in actual university vacancies. Based on the findings of Umphress and colleagues (2008) that a directive from an authority could suppress discriminatory tendencies in a selection context, a vacancy containing a diversity-friendly statement might provide recruiters with a stimulus to suppress discriminatory decision-making regarding sexual minority candidates ('justification-suppression model'; Crandall and Eshleman 2003).

Applying our selection criteria to the occupational data from O*NET and the United States Department of Labor (2021), we selected the following job titles: (1) nurse; (2) legal secretary and administrative assistant; (3) telecommunication line installer and repairer; (4) cabinetmaker and bench carpenter; (5) property, real estate and community association manager; and (6) molecular and cellular biologist. Finally, we adapted vacancy texts from each occupation's O*NET description. The vacancy texts are presented in the Appendix Table 2.[10]

[9] Moreover, different occupational patterns might occur. For example, gay men are more represented in female-majority occupations than heterosexual men and lesbian women are more likely to perform male-majority occupations than heterosexual women (Baumle et al. 2009; Tilcsik et al. 2015). However, according to Tilcsik and colleagues (2015), this occupational segregation is not caused by hiring discrimination itself but rather by its indirect mechanisms. More concretely, gay candidates would have adapted to possible discrimination by applying for occupations providing task independence or requiring social perceptiveness.

[10] Note that, in contrast to the candidate vignettes, we do not exert complete experimental control over the job vacancies' characteristics. Consequently, inferences based on heterogeneity analyses with vacancy characteristics are non-causal. For instance, when men in same-sex marriages have positive hiring prospects for the vacancy of 'nurse', this could be the result of it being a female-dominated occupation (our vacancy variable). However, the heterogeneity we discern could also be the result of unmeasured job characteristics, such as, hypothetically speaking, a hospital setting's inclusive climate.

3.4 Data collection

Our experimental set-up was integrated into an online 'Qualtrics' survey which was distributed among recruiters using the professional panel services from Prolific. To avoid sensitising recruiters to the topic of our study and discourage socially desirable responses, the invitation to partake in the experiment contained no reference to sexual orientation nor to discrimination. Using the same selection criteria as our pre-study (SubSection 3.1.1), we collected responses from 206 American and 202 British recruiters in May 2021. Of the 408 participants, four individuals were excluded during the analyses because they failed the attention check.

3.5 Procedure

In the following paragraphs, we discuss the implementation of our experimental materials in the survey flow. On average, recruiters took 14 min to complete all four phases of the study, namely the (1) introduction, (2) experimental instructions and vacancy, (3) candidate evaluations, and (4) post-experimental questionnaire.

3.5.1 Introduction to the experiment

An introductory screen informed participants about the expected length of the survey (17 min) and their rights regarding data protection. As a result of Prolific's policies, we assured the participants of their anonymous participation—and further discourage social desirable responding. After providing their consent to study participation, recruiters proceeded to the second phase of the study.

3.5.2 Experimental instructions and vacancy

On a second screen, we outlined the experimental scenario. Recruiters were asked to imagine themselves in the following situation:

> *You are working as a recruiter for 'Peterson Inc.'. Your organisation is currently running a project on innovative recruitment practices. More specifically, HR is trialling an artificially intelligent web and resume scraper. When someone applies for one of the organisation's vacancies, the software package supports the recruiter by automatically scanning ('scraping') the applicants' resume and social media accounts – when given permission – and then compiling a brief tabulated candidate summary.*

We carefully considered this scenario to provide recruiters with an ecologically valid explanation for having knowledge of candidates' sexual orientation. Indeed,

public social media accounts often disclose their owners' sexual orientation and are frequently consulted by potential employers (Baert 2018b; Acquisti and Fong 2020).[11]

After being immersed in the experimental context, participants were randomly assigned to one of the fictitious vacancy descriptions discussed in SubSection 3.3. Subsequently, they received the instruction to evaluate candidates for a first job interview. To avoid any confusion over candidates' a-priori suitability, the recruiters were told that the software package correctly compiled the candidate profiles and had already filtered out those candidates who were unsuitable based on objective job requirements (e.g. educational background and professional experiences).

3.5.3 Candidate evaluations and perceptions

Following the fictitious hiring assignment, the recruiters evaluated four different candidate profiles. As such, recruiters were randomly assigned to one of the thirty vignette decks (SubSection 3.2). The evaluations were organised as follows: each candidate and its associated question battery were displayed on a separate screen; recruiters were then free to move between the four screens.[12] The latter safeguards experimental realism, as real-life recruiters evaluate candidate pools instead of isolated profiles.

The question battery the recruiters completed per candidate consisted of three sets of statements: (1) hiring probabilities, (2) perceived attitude towards collaboration, and (3) candidate perceptions. Their agreement with statements was rated on 10-point scales, ranging from strongly disagree (score 1) to strongly agree (score 10).[13] We include an overview of our question battery in Appendix Table 3.

First, following Di Stasio (2014) and Baert (2018a), we gauged hiring probabilities through two statements, one measuring the likelihood they would invite the candidate for a first job interview ('interview probability') and the other the likelihood they would eventually hire the said candidate ('hiring probability').

Second, we employed three statements (Cronbach's alpha = 0.981) to measure perceived attitudes towards collaboration as the theory of taste-based discrimination cites three sources of prejudice in collaboration with sexual minority candidates: the employer, colleagues, and clients (Becker 1957; Baert and De Pauw 2014; Sterkens et al 2021). Given the high correlations between the attitude items, they were bundled in a single attitude-towards-collaboration scale. Nonetheless, analyses with separate attitude items were also conducted.

[11] Indeed, employers search for additional candidate information through social media even when the access to such information is restricted by national legislation (Acquisti and Fong 2020).

[12] Although one candidate''s evaluation might be influenced by the others, structural bias in estimates is unlikely because candidate characteristics were balanced across vignette decks and profiles were presented in random order.

[13] However, the use of categorical variables ranging from 0 to 10 implies that respondents may have a latent continuous variable and use different thresholds to report, for example, a "7" versus a "6" (Peracchi and Rossetti 2012).

Third, and central to our design, were the 21 statements measuring candidate perceptions. In this phase of the experiments, we implemented our systematically-selected list of items from the pre-study (SubSection 3.1) to collect causal evidence for the stereotyping function of candidates' sexual orientation during the hiring process. Based on the theory of levels-based statistical discrimination, each of these potential stereotypes might be (part of) the explanation for hiring discrimination against candidates in a same-sex couple.

3.5.4 Post-experimental questionnaire

In a final step, recruiters completed a post-experimental questionnaire which is reported at the of the Appendix. We used the data collected via these items to explore recruiter-side heterogeneity of hiring discrimination and the execution of robustness checks.

Socio-demographic variables surveyed were gender (man, woman, non-binary/third gender, prefer not to say); age in year, educational degree (primary, lower secondary, higher secondary, bachelors, masters, PhD), and sexual orientation (heterosexual, lesbian, gay, bisexual, other, prefer not to say). Subsequently, we surveyed recruiters' professional experiences, namely hiring tenure (less than 1 year, 1 to 5 years, more than 5 years) and frequency (none, between 1 and 5 times per year, more than 5 times per year).[14]

Next, we incorporated two measures of the recruiters' experiences with sexual minority candidates. As such, we administered the West and Hewstone (2012) scale for contact with gay people. This scale contained four items ($\alpha = 0.888$) scored on a 7-point Likert scale from no contact at all to very frequent contact (under non-COVID circumstances). Each of these items referred to different contexts (at school/work, daily superficial social contact, intimate social situations, all sorts of social situations) in which participants encountered gay individuals. Subsequently, we averaged participants' scores into a single scale score, ranging from one to seven.

However, we not only measured the frequency of contact with gay people but also the recruiters' private attitudes, employing the Modern Homonegativity Scale (MHS), developed by Morrison and colleagues (1999). This validated scale measures the covert negative attitudes of participants towards gay individuals by statements as 'Gay individuals seem to focus on the ways in which they differ from heterosexual individuals and ignore the ways in which they are the same' for example. As such, we asked participants to which degree they agreed with each of the scale's 12 items ($\alpha = 0.948$) on a 5-point Likert scale. We merged the individual item responses into an average scale score, whereby a higher score indicated a stronger endorsement of modern homonegative attitudes (McCutcheon and Morrison 2015). Between these items, we implemented an additional attention check, asking the participants to indicate the option 'strongly agree' (SubSection 3.4).

[14] In hindsight, it would also have made sense to survey the political affiliation and specific job of the participant as, according to an anonymous reviewer, respondents on Prolific tend to be more liberal-minded and self-employed which could skew the results.

Another addition to our post-experimental questionnaire was Reynolds' (1982) shortened Marlowe–Crowne Social Desirability Scale, which we used to measure the participant's socially desirable response tendencies. For each of the 13 items ($\alpha = 0.790$) expressing behaviour that is either culturally approved or sanctioned (e.g. 'I sometimes try to get even rather than forgive'), we asked participants to indicate whether the statements were applicable to them (true, false). This scale is implemented and validated across different contexts (Beretvas et al. 2002; Van Borm and Baert 2018). Its total score is calculated as the (standardised) sum of all statements indicated as true.

The final scale we administered to the recruiters measured their level of risk aversion as might act as a driver of labour market discrimination against sexual minority candidates. For example, the study of Baert (2018a) supports this as gay men were less likely to be hired when the employers were more risk-averse. We implemented Baert's adaptation of the Domain-Specific Risk-Taking Scale (Blais and Weber 2006) which contained six different items ($\alpha = 0.771$), each describing a professional risk (e.g. 'starting a new career in your mid-thirties'). Items were rated for the likelihood they would engage in this behaviour (1, extremely unlikely; 7, extremely likely). The weighted average of all item scores resulted in a global risk-taking score.[15]

3.6 Data description

Because of the random allocation of our vignette decks and fictitious vacancies, we expected low correlations between the fictitious candidates' sexual orientation, job, and recruiter variables. The statistically insignificant *t*-tests and chi-squared tests presented in Table 2 below confirm the success of our experimental setup. Moreover, the D-efficiency algorithm's success is also demonstrated by the low correlation between candidate dimensions (maximum 0.093).

The recruiter characteristics panel from Table 2 further describes the sample's composition. On average, recruiters were 44 years old. They identified themselves as men (50.0%), women (49.0%), or other gender identities (1.0%). The majority of the recruiters considered themselves heterosexual (88.9%). Of the different levels of education, bachelor's degrees (47.0%) were the most common. Participants possessed considerable tenure in making hiring decisions. In this study, 48.3% of the sample reported having more than 5 years of experience. Notably, 49.5% of the recruiters did not evaluate any candidates in the last year—this substantial share might be explained by hiring freezes initiated because of the COVID-pandemic (Campello et al. 2020). Furthermore, our descriptive statistics suggest that the average participant had—at least—occasional contact with gay individuals (average 3.680, maximum 7) and harboured non-negative attitudes towards them (MHS average 2.204, maximum 5).

Our sample was comparable to the 394,644 US and UK HR managers who participated respectively in the American Community Survey (Census Bureau 2022) and

[15] Note that we are measuring—instead of manipulating—recruiter characteristics. Consequently, inferences based on heterogeneity analyses with recruiter characteristics are non-causal.

Table 2 Description of the participating recruiters by experimental condition

	Proportion (indicator variables) or mean (continuous variables)					Independence test (*p*-value)
	Full sample	Experimental condition				
		Man in different-sex marriage	Woman in different-sex marriage	Man in same-sex marriage	Woman in same-sex marriage	
Woman	49.0%	50.4%	47.2%	46.6%	52.6%	0.369
Not heterosexual	11.1%	11.3%	11.7%	10.8%	10.0%	0.982
Age	44.156	44.261	44.108	44.063	44.148	1.000
No tertiary education	25.5%	24.9%	23.9%	28.0%	27.4%	0.530
Bachelor's degree	47.0%	47.7%	47.5%	47.0%	44.8%	0.919
Master's degree	22.8%	23.4%	23.2%	20.5%	23.0%	0.920
British	49.5%	49.0%	50.5%	51.1%	46.7%	0.697
Hired people in the past year	50.5%	49.8%	50.0%	48.5%	48.9%	0.974
Hiring experience of more than 5 years	48.3%	48.1%	48.8%	48.5%	47.4%	0.985
Contact with gay people (standardised)	0.000	−0.050	0.001	0.079	0.015	0.449
Homonegativity (standardised)	0.000	0.011	0.004	0.004	−0.034	0.852
Social desirability (standardised)	0.000	0.022	0.019	−0.013	−0.070	0.786
Risk aversion (standardised)	0.000	0.006	−0.023	0.046	−0.009	0.647

To test the independence between the participant characteristic and the experimental condition, a chi-square (indicator variable) or Kruskal–Wallis (continuous variable) test is conducted

UK Census (Office for National Statistics 2021) in 2021. More concretely, these HR managers were found to be predominantly women (US = 66.85%; UK = 61.05%) and between 40 and 49 years old (US = 25.85%; UK = 30.74%). Moreover, the majority of the US HR managers have a Bachelor degree (39.97%). In addition, our sample aligns with the general US and UK populations in terms of sexual orientation. Specifically, Gallup data estimated that 7.6% of Americans identify as LGBTQ + (Jones 2024) and Census data from 2022 find 6.6% of the UK population do not identify as heterosexual (Office for National Statistics 2023).

4 Results

In what follows, we examine the effect of same-sex marriages on hiring probabilities for both men and women using a multivariate regression framework (SubSection 4.1). Next, through multiple mediation analyses, we investigate the stereotyping function of sexual orientation and its role in explaining differences in recruitment decisions (SubSection 4.2). Subsequently, we explore heterogeneity in the effects of sexual orientation on interview probabilities and perceptions employing moderation analyses (SubSection 4.3). Finally, in robustness checks, we test whether different subsamples hold the same perceptions regarding sexual minority candidates (SubSection 4.4).

For all analyses we conducted, the standard errors are corrected for clustering of the observations at the recruiter level. In the subsections below, we only discuss the results for the interview probability as this is the most proximal outcome in our experimental set-up (Sterkens et al. 2021). However, the analyses on hiring probability yield similar results and are available in Tables 4 and 5 in the Appendix.

4.1 Standard regression analyses

To examine causal differences in interview probability between the investigated sexual orientations, we fit a multivariate linear regression model (see Eq. 1) of interview probabilities (Y) on the candidate's sexual orientation (SO) and the other candidate (CC), vacancy (VC), and recruiter characteristics (RC) discussed in Section 3. The model's estimates are presented in the first column of Table 3. The other columns are further discussed in SubSection 4.3.

$$Y = \alpha_Y + \beta_Y SO + \gamma_Y CC + \delta_Y VC + \theta_Y RC + \varepsilon_Y \quad (1)$$

In general, we find a statistically significant causal effect of the candidates' sexual orientations on the interview probability. That is, candidates in a female same-sex marriage have a 4.2 percentage point ($p = 0.012$) higher interview probability than the regression's reference category of male candidates in a different-sex marriage.[16] This equals an increase of 0.147 standard deviation in

[16] All beta coefficients could be interpreted as differences expressed in percentage points by multiplying these coefficients by 10. This interpretation is adequate because the evaluation and perception scales ranged from 0 to 10.

Table 3 Main and moderation effects with interview probability as the outcome

	Interview probability				
	(1)	(2)	(3)	(4)	(5)
A. Candidate characteristics					
Sexual orientation (ref. = man in different-sex marriage)					
Woman in different-sex marriage	0.224* (0.125)	0.206 (0.125)	0.223 (0.125)	0.228* (0.125)	0.208* (0.126)
Man in same-sex marriage	0.251 (0.167)	1.662 (1.656)	0.437 (0.377)	1.203* (0.653)	3.008 (1.823)
Woman in same-sex marriage	0.424** (0.168)	0.624 (2.400)	0.388 (0.350)	0.646 (0.638)	1.031 (2.475)
Age (c.)	−0.001 (0.008)	0.004 (0.010)	−0.001 (0.008)	−0.000 (0.008)	0.003 (0.011)
Experience (ref. = none)					
Two years	2.988*** (0.143)	3.074*** (0.186)	3.007*** (0.143)	2.973*** (0.145)	3.086*** (0.189)
Five years	4.059*** (0.164)	4.521*** (0.195)	4.066*** (0.164)	4.047*** (0.165)	4.525*** (0.197)
Foreign language knowledge (ref. = none)					
French	0.089 (0.125)	0.029 (0.145)	0.087 (0.126)	0.059 (0.124)	0.035 (0.147)
Spanish	0.164 (0.123)	−0.017 (0.155)	0.166 (0.123)	0.165 (0.124)	−0.020 (0.157)
Professional achievements (ref. = none)					
Diversity ambassador	0.837*** (0.121)	1.285*** (0.159)	0.832*** (0.121)	0.864*** (0.122)	1.286*** (0.159)
Employee of the month	0.760*** (0.116)	0.944*** (0.151)	0.762*** (0.115)	0.777*** (0.117)	0.949*** (0.151)
Hobbies (ref. = none mentioned)					
Wrestling	0.597*** (0.193)	0.700*** (0.227)	0.605*** (0.191)	0.582*** (0.189)	0.714*** (0.228)
Gymnastics	0.462** (0.201)	0.573** (0.255)	0.469** (0.199)	0.455** (0.202)	0.571** (0.256)
Tennis	0.365* (0.193)	0.656*** (0.238)	0.372* (0.192)	0.390** (0.193)	0.660*** (0.240)
Volunteers to distribute food for local community	0.716*** (0.176)	1.025*** (0.213)	0.731*** (0.175)	0.698*** (0.176)	1.024*** (0.215)
Volunteers at LGBTQ rights organisation	0.409** (0.189)	0.443* (0.229)	0.427** (0.187)	0.415** (0.192)	0.443* (0.231)
B. Vacancy characteristics					
Gender-type (ref. = neutral job)					
Male-dominated job	0.230 (0.192)	0.195 (0.190)	0.352* (0.208)	0.214 (0.192)	0.308 (0.208)

Table 3 (continued)

	Interview probability				
	(1)	(2)	(3)	(4)	(5)
Female-dominated job	0.035 (0.193)	−0.000 (0.191)	0.038 (0.210)	0.045 (0.193)	0.038 (0.211)
Customer contact: high	0.168 (0.157)	0.169 (0.156)	0.203 (0.173)	0.202 (0.156)	0.236 (0.175)
Diversity statement: included	0.132 (0.154)	0.111 (0.153)	0.068 (0.168)	0.130 (0.153)	0.062 (0.169)
C. Participant characteristics					
Gender (ref. = man)					
Woman	−0.048 (0.163)	−0.084 (0.160)	−0.044 (0.163)	−0.066 (0.174)	−0.066 (0.175)
Sexual orientation (ref. = heterosexual)					
Not heterosexual	−0.549** (0.244)	−0.533** (0.239)	−0.565** (0.246)	−0.450* (0.254)	−0.440* (0.255)
Age (cont.)	0.000 (0.006)	−0.001 (0.007)	−0.000 (0.007)	0.004 (0.007)	0.004 (0.007)
Educational degree (ref. = lower than tertiary)					
Tertiary education	−0.382** (0.182)	−0.396** (0.182)	−0.387** (0.182)	−0.293 (0.201)	−0.305 (0.204)
Nationality (ref. = USA)					
UK	−0.039 (0.157)	−0.031 (0.158)	−0.039 (0.157)	−0.088 (0.172)	−0.065 (0.173)
Hiring experience (ref. = less than 5 years)					
More than 5 years	0.081 (0.160)	0.083 (0.158)	0.081 (0.160)	0.027 (0.175)	0.014 (0.176)
Contact with gay people (s.)	0.187** (0.087)	0.185** (0.085)	0.180** (0.087)	0.174* (0.095)	0.181* (0.094)
Homonegativity (s.)	−0.454*** (0.093)	−0.442*** (0.092)	−0.455*** (0.093)	−0.314*** (0.093)	−0.313*** (0.093)
Risk aversion (s.)	0.168* (0.094)	0.149 (0.094)	0.174* (0.094)	0.144 (0.111)	0.135 (0.112)
D. Interactions with candidate characteristics					
Man in same-sex marriage × age		−0.009 (0.035)			−0.003 (0.036)
Man in same-sex marriage × 2 years		−0.048 (0.466)			−0.195 (0.487)
Man in same-sex marriage × 5 years		−1.379** (0.564)			−1.533*** (0.573)
Man in same-sex marriage × French		0.349 (0.488)			0.283 (0.501)

Table 3 (continued)

	Interview probability				
	(1)	(2)	(3)	(4)	(5)
Man in same-sex marriage × Spanish		0.306 (0.459)			0.341 (0.449)
Man in same-sex marriage × diversity ambassador		−0.447 (0.485)			−0.367 (0.487)
Man in same-sex marriage × employee of the month		−0.060 (0.410)			−0.014 (0.414)
Man in same-sex marriage × wrestling		−1.004 (0.629)			−0.978 (0.631)
Man in same-sex marriage × gymnastics		0.050 (0.646)			0.143 (0.654)
Man in same-sex marriage × tennis		−1.044 (0.638)			−0.987 (0.652)
Man in same-sex marriage × volunteers to distribute food for local community		−1.063 (0.648)			−1.149* (0.652)
Man in same-sex marriage × volunteers at LGBTQ rights organisation		−0.816 (0.733)			−0.688 (0.764)
Woman in same-sex marriage × age		0.021 (0.050)			0.022 (0.049)
Woman in same-sex marriage × 2 years		−0.257 (0.555)			−0.211 (0.554)
Woman in same-sex marriage × 5 years		−1.251** (0.500)			−1.272** (0.506)
Woman in same-sex marriage × French		−0.436 (0.512)			−0.607 (0.502)
Woman in same-sex marriage × Spanish		0.149 (0.485)			0.144 (0.496)
Woman in same-sex marriage × diversity ambassador		−1.172* (0.678)			−1.230 (0.670)
Woman in same-sex marriage × employee of the month		−0.334 (0.481)			−0.252 (0.479)
Woman in same-sex marriage × wrestling		0.205 (0.679)			0.124 (0.704)
Woman in same-sex marriage × gymnastics		0.758 (0.905)			0.966 (0.919)
Woman in same-sex marriage × tennis		−0.348 (0.655)			−0.252 (0.672)
Woman in same-sex marriage × volunteers to distribute food for local community		−0.218 (0.601)			−0.166 (0.610)
Woman in same-sex marriage × volunteers at LGBTQ rights organisation		−0.044 (0.923)			−0.009 (0.959)

Table 3 (continued)

	Interview probability				
	(1)	(2)	(3)	(4)	(5)
E. Interactions with vacancy characteristics					
Man in same-sex marriage × male-dominated job			−0.179 (0.392)		−0.294 (0.373)
Man in same-sex marriage × female-dominated job			−0.494 (0.351)		−0.518 (0.358)
Man in same-sex marriage × high customer contact			0.052 (0.299)		−0.088 (0.305)
Man in same-sex marriage × diversity statement included			0.020 (0.294)		−0.035 (0.292)
Woman in same-sex marriage × male-dominated job			0.220 (0.375)		0.209 (0.380)
Woman in same-sex marriage × female-dominated job			−0.210 (0.391)		−0.336 (0.375)
Woman in same-sex marriage × high customer contact			−0.276 (0.307)		−0.130 (0.310)
Woman in same-sex marriage × diversity statement included			0.370 (0.310)		0.314 (0.306)
F. Interactions with recruiter characteristics					
Man in same-sex marriage × woman				0.350 (0.307)	0.270 (0.317)
Man in same-sex marriage × not heterosexual				−0.283 (0.458)	−0.406 (0.461)
Man in same-sex marriage × age (cont.)				−0.018 (0.015)	−0.025 (0.016)
Man in same-sex marriage × tertiary education				−0.520 (0.326)	−0.503 (0.340)
Man in same-sex marriage × UK				0.043 (0.315)	0.127 (0.316)
Man in same-sex marriage × more than 5 years of hiring experience				0.158 (0.313)	0.263 (0.316)
Man in same-sex marriage × contact with gay people (s.)				−0.154 (0.172)	−0.181 (0.183)
Man in same-sex marriage × homonegativity (s.)				−0.414** (0.194)	−0.322 (0.204)
Man in same-sex marriage × risk aversion (s.)				0.081 (0.177)	0.046 (0.179)
Woman in same-sex marriage × woman				−0.322 (0.319)	−0.408 (0.321)
Woman in same-sex marriage × not heterosexual				−0.230 (0.480)	−0.212 (0.500)
Woman in same-sex marriage × age (cont.)				−0.008 (0.013)	−0.010 (0.013)

Table 3 (continued)

	Interview probability				
	(1)	(2)	(3)	(4)	(5)
Woman in same-sex marriage × tertiary education				0.161 (0.349)	0.098 (0.367)
Woman in same-sex marriage × UK				0.296 (0.326)	0.078 (0.336)
Woman in same-sex marriage × more than 5 years of hiring experience				0.139 (0.310)	0.172 (0.316)
Woman in same-sex marriage × contact with gay people (s.)				0.217 (0.183)	0.140 (0.184)
Woman in same-sex marriage × homonegativity (s.)				−0.393** (0.184)	−0.443** (0.184)
Woman in same-sex marriage × risk aversion (s.)				0.014 (0.179)	0.044 (0.181)
N	1616				

Abbreviations used: s. (scale consisting of multiple items) and ref. (reference category). The presented statistics are coefficient estimates and their standard errors in parentheses for the mediation model outlined in SubSect. 4.2. Standard errors are corrected for clustering of the observations at the participant level. *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$

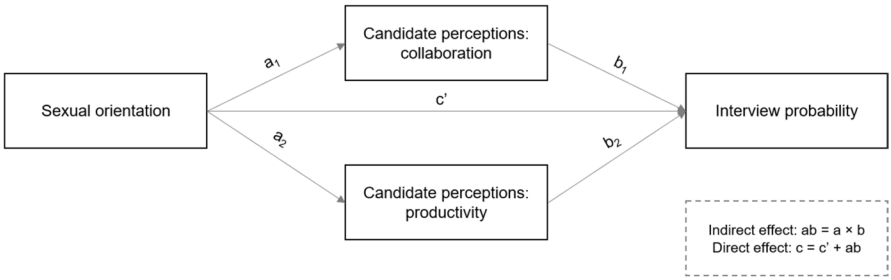

Fig. 1 Schematic representation of mediation analyses

interview probability. Interview probabilities of other groups are not (men in same-sex marriages: $\beta = 0.251$, $p = 0.134$) or marginally (women in different-sex marriages: $\beta = 0.224$, $p = 0.072$) significantly different from those of men in different-sex marriages. Hence, we find only partial evidence for Hypothesis 1.

4.2 Multiple mediation analyses

Using multiple mediation analyses (Hayes 2017), we explore explanations for the effect of sexual orientation on interview probabilities. More specifically, we statistically test pathways through which independent variables influence a dependent variable. In our design, schematically represented in Fig. 1, we evaluate whether the effect of sexual orientation on interview probabilities ('c-path' in Fig. 1) can be explained by indirect pathways via candidate perceptions ('ab-path' in Fig. 1; proposed mediation). We explore such indirect effects by multiplying the causal effect estimates of sexual orientation on the perception items ('a-path' in Fig. 1) with the associations between those perception items and interview probability ('b-path' in Fig. 1; Baron and Kenny 1986).[17] However, these multiplications should be interpreted as associations because our experimental setup is limited to the causal interpretation of relationships between sexual orientation and perceptions ('a-path' in Fig. 1), and sexual orientation and the interview probability ('c-path' in Fig. 1).[18] Indeed, we were unable to manipulate candidate perceptions (i.e. our mediators) separately, and there could be additional unmeasured variables confounding the model. As a hypothetical example, if the hiring penalties of candidates in same-sex relations are driven by unmeasured hypothetical perceptions (e.g. 'sexual minority candidates are offending'), any indirect relationship ('ab-path' in Fig. 1) through measured perceptions such as 'outspokenness' could be biased.

Applied to the data, the multiple mediation framework consists of 23 linear regressions. Twenty-two of these regress the perception items $\left(PI_i\right)$ on the

[17] ''Indirect effect'' is common terminology in the mediation literature (Hayes 2017).

[18] This limitation arises because we can only exert full experimental control over the candidate characteristics that are manipulated (e.g. sexual orientation). For the other independent variables in our models, namely, the vacancy and recruiter characteristics, we cannot exclude the possibility of unmeasured confounders. We discuss this matter further in Section 5.

Table 4 Summary of the mediation analysis ('a-path'): signalling effects of sexual orientation on candidate perceptions with different reference categories

	Men in same-sex marriages compared to men in different-sex marriages	Women in same-sex marriages compared to women in different-sex marriages
Perceived collaboration (s.)	−0.647*** (0.180)	0.684*** (0.131)
Perceived social skills	0.265** (0.114)	0.087 (0.124)
Perceived assertiveness	0.136 (0.118)	0.414*** (0.124)
Perceived outspokenness	0.430*** (0.115)	0.482*** (0.126)
Perceived dominance	−0.189* (0.114)	0.326** (0.127)
Perceived independence	0.154 (0.113)	0.335*** (0.119)
Perceived competitiveness	0.017 (0.121)	0.124 (0.133)
Perceived leadership	0.031 (0.121)	0.134 (0.123)
Perceived team orientation	0.241** (0.119)	−0.175 (0.113)
Perceived empathy	0.299*** (0.114)	−0.048 (0.124)
Perceived softness of personality	0.450*** (0.116)	−0.244** (0.119)
Perceived emotional sensitivity	0.681*** (0.128)	0.124 (0.132)
Perceived neatness	0.433*** (0.108)	−0.033 (0.115)
Perceived intelligence	0.242** (0.110)	0.142 (0.124)
Perceived open-mindedness	0.764*** (0.126)	0.666*** (0.118)
Perceived creativity	0.447*** (0.109)	0.174 (0.112)
Perceived talkativeness	0.671*** (0.121)	0.046 (0.111)
Perceived honesty	0.276** (0.108)	0.153 (0.131)
Perceived professionalism	0.154 (0.113)	0.051 (0.126)
Perceived self-awareness	0.396*** (0.120)	0.386*** (0.127)
Perceived career orientation	0.152 (0.116)	0.129 (0.122)
Perceived current health	0.003 (0.111)	−0.053 (0.131)
Interview probability	0.424*** (0.142)	0.077 (0.145)
N	1616	

Abbreviation used: s. (scale consisting of multiple items). The presented statistics are coefficient estimates and their standard errors in parentheses for the a-path in the mediation model outlined in SubSection 4.2. The full results are presented in Appendix Table 3, where men in different-sex marriages are the reference category, and in Appendix Table 4, where women in different-sex marriages are the reference category. Standard errors are corrected for clustering of the observations at the participant level. *$p<0.10$; **$p<0.05$; ***$p<0.01$

candidate's sexual orientation (*SO*) and the other candidate (*CC*), vacancy (*VC*), and recruiter (*RC*) characteristics as demonstrated in Eq. 2 ('a-path' in Fig. 1). The 23rd regression then regresses these 22 perception items $\left(PI_i\right)$, the candidate's sexual orientation (*SO*) and the other candidate (*CC*), vacancy (*VC*), and recruiter characteristics (*RC*) on interview probability (*Y*) as depicted in Eq. 3 ('b-path' in Fig. 1).

$$PI_i = \alpha_{PI_i} + \beta_{PI_i} SO + \gamma_{PI_i} CC + \delta_{PI_i} VC + \theta_{PI_i} RC + \varepsilon_{PI_i} \quad (2)$$

$$Y = \alpha_Y + \beta_Y SO + \gamma_Y CC + \delta_Y VC + \theta_Y RC + \epsilon_1 PI_1 + \epsilon_2 PI_2 + \epsilon_3 PI_3 + \cdots + \epsilon_{22} PI_{22} + \varepsilon_Y \quad (3)$$

In the following three paragraphs, we discuss the summarised results of the first 22 regressions regarding the causal effects of the candidates' sexual orientation on the perception items as demonstrated in Table 4 ('a-path' in Fig. 1; Eq. 2).[19] Here, we present the main effects' estimates, their significance, and the effect size between brackets. The latter represents the beta-estimates divided by the dependent variables' standard deviations.

In our comparison of men in same-sex and different-sex marriages, the second column of Table 4 provides causal evidence for the majority of the perceptions identified in the literature (SubSection 3.1). Men are perceived as having more advanced social skills ($\beta = 0.265$, $p = 0.020$, $\beta/SD = 0.148$), being more outspoken ($\beta = 0.430$, $p < 0.001$, $\beta/SD = 0.246$), having more of a team orientation ($\beta = 0.241$, $p = 0.043$, $\beta/SD = 0.140$), showing more empathy in collaboration ($\beta = 0.299$, $p = 0.009$, $\beta/SD = 0.168$), having a loving and soft personality ($\beta = 0.450$, $p < 0.001$, $\beta/SD = 0.252$), and being more emotionally sensitive ($\beta = 0.681$, $p < 0.001$, $\beta/SD = 0.371$), neat ($\beta = 0.433$, $p < 0.001$, $\beta/SD = 0.262$), intelligent ($\beta = 0.242$, $p = 0.028$, $\beta/SD = 0.139$), open-minded ($\beta = 0.764$, $p < 0.001$, $\beta/SD = 0.411$), creative ($\beta = 0.447$, $p < 0.001$, $\beta/SD = 0.262$), talkative ($\beta = 0.671$, $p < 0.001$, $\beta/SD = 0.375$), honest ($\beta = 0.276$, $p = 0.011$, $\beta/SD = 0.159$), and self-aware ($\beta = 0.396$, $p = 0.001$, $\beta/SD = 0.218$) when they are married to a same-sex partner than to a different-sex partner. Conversely, we also find that, compared to men in different-sex marriages, collaborations with men in same-sex marriages are regarded more negatively ($\beta = -0.647$, $p < 0.001$, $\beta/SD = 0.270$) and they are – marginally significantly—perceived to be less dominant ($\beta = -0.189$, $p = 0.098$, $\beta/SD = 0.111$). Moreover, we find no empirical evidence that men in same-sex and different-sex marriages are generally perceived as differing in assertiveness, independence, competitiveness, leadership skills, professionalism, career orientation, or current health.

The mirror image of these comparisons, where additional regressions contrast the perceptions of women in same-sex marriages against different-sex marriages, yields equally interesting causal effects which are presented in the third column of Table 4. Women in same-sex marriages are generally perceived by recruiters as being more pleasant to collaborate with ($\beta = 0.684$, $p < 0.001$, $\beta/SD = 0.286$) and more assertive ($\beta = 0.414$, $p = 0.001$, $\beta/SD = 0.240$), outspoken ($\beta = 0.482$, $p < 0.001$, $\beta/SD = 0.276$), dominant ($\beta = 0.326$, $p = 0.010$, $\beta/SD = 0.192$), independent ($\beta = 0.335$, $p = 0.005$, $\beta/SD = 0.192$), open-minded ($\beta = 0.666$, $p < 0.001$, $\beta/SD = 0.358$), and self-aware ($\beta = 0.386$, $p = 0.002$, $\beta/SD = 0.218$) compared to their counterparts in different-sex marriages. Notably, only the signal of having a loving and soft personality was less applicable than for women in different-sex marriages ($\beta = -0.244$, $p = 0.041$, $\beta/SD = 0.137$). In these comparisons, however, we find no empirical evidence for the

[19] The full estimation results of the model in which men in different-sex marriages are used as the reference category are available in Appendix Table 6, while Appendix Table 7 depicts the results when women in different-sex marriages are integrated as the reference category.

Table 5 Mediation effects ('ab-path'): association between same-sex orientations and interview probabilities via candidate perceptions, with men in different-sex marriages as the reference category

Mediators	Man in same-sex marriage		Woman in same-sex marriage	
	β	*p*	*β*	***p***
Perceived collaboration (s.)	−0.163***	0.000	0.136***	0.000
Perceived social skills	0.026*	0.090	0.028	0.109
Perceived assertiveness	0.003	0.763	0.008	0.684
Perceived outspokenness	−0.041**	0.040	−0.054**	0.038
Perceived dominance	0.001	0.958	0.001	0.965
Perceived independence	−0.006	0.671	−0.017	0.573
Perceived competitiveness	0.001	0.943	0.002	0.811
Perceived leadership	0.007	0.794	0.040	0.115
Perceived team orientation	0.031	0.116	0.012	0.495
Perceived empathy	−0.002	0.879	−0.003	0.876
Perceived softness of personality	0.013	0.592	0.005	0.698
Perceived emotional sensitivity	−0.009	0.798	−0.008	0.803
Perceived neatness	−0.028	0.194	−0.008	0.444
Perceived intelligence	0.005	0.755	0.005	0.761
Perceived open-mindedness	−0.035	0.369	−0.040	0.342
Perceived creativity	0.045	0.157	0.041	0.128
Perceived talkativeness	−0.029	0.259	−0.020	0.314
Perceived honesty	−0.019	0.263	−0.028	0.280
Perceived professionalism	0.014	0.372	0.014	0.383
Perceived self-awareness	−0.023	0.318	−0.037	0.260
Perceived career orientation	0.040	0.193	0.052	0.165
Perceived current health	0.001	0.992	0.001	0.881
Total effect of sexual orientation	0.251	0.134	0.424	0.012

Abbreviation used: s. (scale consisting of multiple items). *P*-values are corrected for clustering of observations at the participant level. *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$

remaining stereotypes: advanced social skills, competitiveness, possessing effective leadership skills, displaying a team orientation, showing empathy in collaborations, emotional sensitivity, being neat, intelligent, creative, talkative, honest, perceived professionalism, having a career orientation, and current health.

Taken together, and in line with other research (Niedlich et al. 2022), our results show that recruiters—in general—derive desirable candidate characteristics from candidates in same-sex marriages. It appears that sexual orientation could be regarded as a subtle complement to most recruiters' gender-driven candidate perceptions. This seems particularly the case for women in same-sex marriages who are perceived as similar to women in different-sex marriages in terms of many of the characteristics associated with female-gender role characteristics (e.g. displaying empathy in collaborations) but also score higher on certain perceptions associated

with the male-gender role (e.g. dominance). Furthermore, our results for men in same-sex marriages indicate that recruiters rate their productivity higher than their counterparts in different-sex marriages but prefer not to work with them, supporting the idea that discrimination is driven by taste rather than statistics. Hence, as predicted by hypotheses 2A and 3A, we find systematic differences in perceptions regarding applicants in same-sex marriages.

In the next step of our mediation framework, we calculate the indirect association between sexual orientation and interview probabilities via candidate perceptions, referred to as the 'mediation effects' ('ab-path' in Fig. 1; Baron and Kenny 1986; Hayes 2017). To do this, we multiply the causal effects of sexual orientation on candidate perceptions ('a-path' in Fig. 1; first 22 columns of Appendix Table 6) by the associations between these perceptions and interview probability ('b-path' in Fig. 1; final column of Appendix Table 6). The results of this procedure are depicted in Table 5.

We find that only four mediation effects are statistically significant at the 5% significance level. Specifically, the negative perception of collaboration with men in same-sex marriages is associated with lower interview probabilities ($\beta = -0.163$, $p < 0.001$) and the positive perception concerning women in same-sex marriages is associated with higher interview chances ($\beta = 0.136$, $p < 0.001$). These significant indirect associations via perceived collaboration fully support hypothesis 2B. Moreover, interview probabilities are negatively associated with the outspokenness stereotype of candidates in a same-sex marriage (men: $\beta = -0.041$, $p = 0.040$; women: $\beta = -0.054$, $p = 0.038$). This finding may appear surprising, but it aligns with the recent meta-analysis of the field experimental evidence on hiring discrimination by Lippens and colleagues (2023). That is, these authors' weighted average, which indicates substantial hiring discrimination against sexual minorities, is mainly driven by field experiments in which sexual orientation is revealed by LGB + organisation affiliation. This suggests that it is a revelation of activism that is penalised rather than a revelation of sexual orientation. Finally, the perceived better social skills of men in same-sex marriages are associated with higher interview probabilities, albeit at the 10% significance level only ($\beta = 0.026$, $p = 0.090$). Hence, we find only weak support for hypothesis 3B.

4.3 Moderation analyses

Our relatively optimistic findings concerning the interview probabilities and candidate evaluations of sexual minority candidates might appear to be at odds with part of the discrimination literature. This, however, is not necessarily the case because moderators could be in play (Baron and Kenny 1986; Hayes 2017). To test the moderating potential of candidate, vacancy, and recruiter characteristics, Table 3 presented in SubSection 4.1 also shows the results of moderation analyses with interview probability (Y) as the outcome variable. The first column contains parameter estimates without interaction terms as discussed in SubSection 4.1. In the subsequent columns, interaction terms with candidate (*CC*; *Equation* 4; *second column of Table* 3), vacancy (*VC*; *Equation* 5; *third column of Table*3), and recruiter characteristics (*RC*; *Equation* 6; *fourth column of Table* 3) are implemented separately. The final

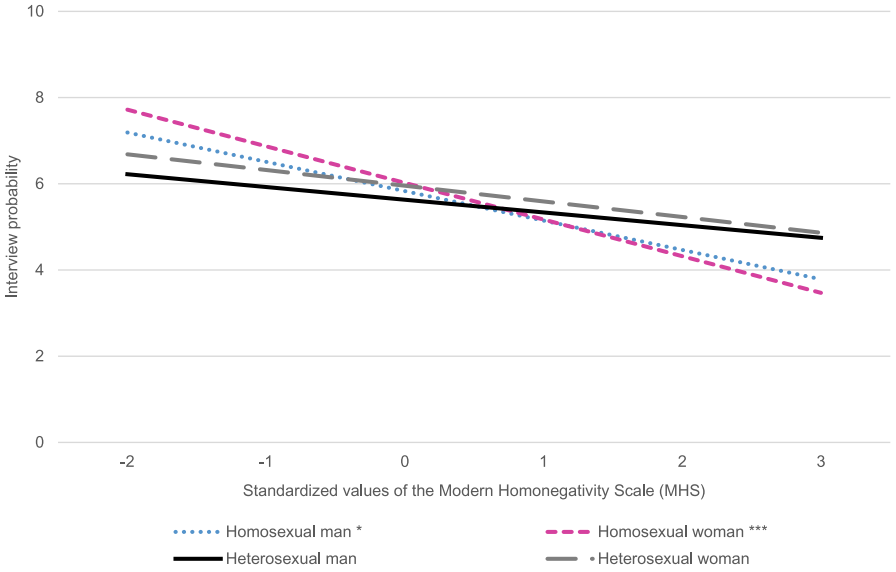

Fig. 2 Interaction effects between sexual orientation and the MHS on interview probability. $*p<0.10$; $**p<0.05$; $***p<0.01$

column contains the results from the most complex regression model, in which all interactions are introduced jointly (*Equation* 7; *fifth column of Table* 3). Our discussion below is based on this final model.

$$Y = \alpha_Y + \beta_Y SO + \gamma_Y CC + \delta_Y VC + \theta_Y RC + \psi_Y SO \times CC + \varepsilon_Y \tag{4}$$

$$Y = \alpha_Y + \beta_Y SO + \gamma_Y CC + \delta_Y VC + \theta_Y RC + \omega_Y SO \times VC + \varepsilon_Y \tag{5}$$

$$Y = \alpha_Y + \beta_Y SO + \gamma_Y CC + \delta_Y VC + \theta_Y RC + \zeta_Y SO \times RC + \varepsilon_Y \tag{6}$$

$$Y = \alpha_Y + \beta_Y SO + \gamma_Y CC + \delta_Y VC + \theta_Y RC + \psi_Y SO \times CC + \omega_Y SO \times VC + \zeta_Y SO \times RC + \varepsilon_Y \tag{7}$$

The analyses with candidate characteristics reveal that, compared to men in different-sex marriages, men ($\beta = -1.533$, $p<0.001$) and women ($\beta = -1.272$, $p=0.012$) in same-sex marriages experience a lower premium of having 5 years of experience in an occupation. One hypothetical explanation could be that employers relate maturity-related perceptions, such as being more self-aware and independent, to them anyway given their openness concerning their sexual orientation. Furthermore, we find evidence that certain professional achievements and extra-curricular activities are appreciated differently for men and women in same-sex marriages. For instance, at the 10% significance level, volunteering yields a lower hiring premium for these men ($\beta = -1.149$, $p=0.079$). Conversely, when these women took on diversity ambassadorship in a prior workplace, they received relatively lower interview probabilities ($\beta = -1.230$, $p=0.067$). The

latter finding might, again, be explained by a punishment for activism. Among men in same-sex marriages, no such trend arises ($\beta = -0.367$, $p = 0.452$). Because we exert experimental control over candidate characteristics, these moderations can be given a causal interpretation.

We find no heterogeneity by the job vacancy dimension. Our studies herein contradict the findings from, for example, Baert (2014) and Mishel (2020), who reported more hiring discrimination in jobs where frequent customer contact is required from job incumbents. One explanation could be that the recruiters did not possess sufficient experience with the job vacancy—although the presented job titles were accompanied by job descriptions.

When we examine the interaction terms between the candidate's sexual orientation and the recruiter characteristics we find, in particular, that recruiters' homonegative attitudes are negatively associated with the interview probabilities of sexual minority candidates (also presented in Fig. 2). Although we find consistent evidence for this association among female candidates in a same-sex marriage in the fourth model, including recruiter interaction terms ($\beta = -0.393$, $p = 0.033$), and the fifth model with all interaction terms ($\beta = -0.443$, $p = 0.016$), only the fourth model specifically does so for men in a same-sex marriage ($\beta = -0.414$, $p = 0.034$). In contrast, no interaction effect is found between recruiters' contact with gay individuals and the interview probabilities, which might be explained by the fact that this contact experience possibly yields positive as well as negative perception adjustments. In addition, no significant effects are found between recruiters' nationality (British or American) and the interview probabilities of candidates married to a same-sex partner. Because we did not have experimental control over recruiter characteristics, these relationships cannot be interpreted causally.

The overall non-negative effect of being married to a same-sex partner on hiring outcomes and the small subsample of recruiters who answered in the direction of harbouring homonegative attitudes (i.e. 13.6% of the sample scoring more than one standard deviation above the average), align with the notion of a concentrated discrimination account. This concept (Campbell and Brauer 2021), suggests that the majority of discriminatory behaviours are committed by a minority of individuals who repeatedly discriminate against sexual minorities – which calls for a focused anti-discrimination policy (Section 5). From the perspective of such a concentrated discrimination account, we complement our analyses with an exploration of how recruiters who are more prone to discriminate—as derived from the interaction with homonegativity—perceive candidates in same-sex marriages compared to our broader sample. We do so by employing moderation analyses with the perception items as outcome variables (PI_i), and the candidate's sexual orientation (SO), the other candidate (CC), vacancy (VC), and recruiter (RC) variables as independent variables. Interaction terms between the candidates' sexual orientation and recruiter characteristics are added to our regression models as depicted in Eq. 8.

$$PI_i = \alpha_{PI_i} + \beta_{PI_i} SO + \gamma_{PI_i} CC + \delta_{PI_i} VC + \theta_{PI_i} RC + \zeta_{PI_i} SO \times RC + \varepsilon_{PI_i} \quad (8)$$

Three notable trends regarding the interaction between candidates married to a same-sex partner and recruiters' homonegative attitudes emerge from the summarising results presented in Table 6. We find that, compared to the general sample, harbouring homonegative attitudes is associated with (i) additional stereotyping functions of same-sex marriages and (ii) relatively less positive stereotypes but also (iii) agreement on sexual orientation's stereotyping function for various perceptions—regardless of attitude.

First, recruiters with homonegative attitudes are significantly more likely to interpret same-sex marriages as negative stereotypes for leadership skills (men: $\beta = -0.462$; women: $\beta = -0.400$), professionalism (men: $\beta = -0.580$; women: $\beta = -0.416$), career orientations (men: $\beta = -0.300$; women: $\beta = -0.350$), and current health (men: $\beta = -0.474$; women: $\beta = -0.371$), whereas, in the full sample, recruiters generally do not perceive same-sex marriages as stereotyping for these

Table 6 Moderation analyses between candidates' same-sex orientations and participants' homonegative attitudes, with perception items as outcomes and men in different-sex marriages as the reference category

Mediators	Man in same-sex marriage × homonegativity (s.)		Woman in same-sex marriage × homonegativity (s.)	
	β	p	β	p
Perceived collaboration (s.)	−0.157	0.462	−0.289*	0.078
Perceived social skills	−0.368***	0.005	−0.248**	0.049
Perceived assertiveness	−0.274**	0.049	−0.264*	0.077
Perceived outspokenness	−0.056	0.675	−0.103	0.449
Perceived dominance	−0.333**	0.010	−0.185	0.201
Perceived independence	−0.179	0.165	−0.299**	0.028
Perceived competitiveness	−0.367***	0.002	−0.273*	0.066
Perceived leadership	−0.462***	0.001	−0.400***	0.002
Perceived team orientation	−0.335**	0.010	−0.324**	0.011
Perceived empathy	−0.167	0.162	−0.265*	0.069
Perceived softness of personality	−0.042	0.747	−0.142	0.253
Perceived emotional sensitivity	0.077	0.624	−0.005	0.977
Perceived neatness	0.004	0.970	−0.177	0.196
Perceived intelligence	−0.408***	0.001	−0.483***	0.001
Perceived open-mindedness	0.050	0.730	0.108	0.448
Perceived creativity	−0.276**	0.043	−0.020	0.863
Perceived talkativeness	−0.131	0.327	0.001	0.996
Perceived honesty	−0.458***	0.001	−0.312**	0.036
Perceived professionalism	−0.580***	0.001	−0.416***	0.005
Perceived self-awareness	−0.424***	0.003	−0.095	0.533
Perceived career orientation	−0.300**	0.016	−0.350***	0.005
Perceived current health	−0.474***	0.001	−0.371**	0.010

Abbreviation used: s. (scale consisting of multiple items). The regression model's predictors are identical to those in the final column of Table 3 in the Appendix. Standard errors are corrected for clustering of the observations at the participant level. *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$

characteristics at all (Subsection 4.3.1). The same trend applies to the competitiveness of men ($\beta = -0.367$) but not to women in same-sex marriages.

Second, whereas recruiters generally derive positive stereotypes from same-sex marriages, the recruiters expressing more homonegative attitudes derive relatively fewer positive stereotypes from such marriages. More concretely, the latter think more negatively about the intelligence (men: $\beta = -0.408$; women: $\beta = -0.483$), social skills (men: $\beta = -0.368$; women: $\beta = -0.248$), honesty (men: $\beta = -0.458$; women: $\beta = -0.312$), and team orientation (men: $\beta = -0.335$; women: $\beta = -0.324$) of candidates in same-sex marriages. This is also the case for the perceived dominance ($\beta = -0.333$), creativity ($\beta = -0.276$), and self-awareness ($\beta = -0.424$) of men married to a same-sex partner, and for the perceived independence ($\beta = -0.229$) of women married to a same-sex partner.

Third, recruiters with homonegative attitudes appear to have similar perceptions as other recruiters concerning candidates in a same-sex marriage collaboration with others, empathy, soft personality, emotional sensitivity, neatness, talkativeness, open-mindedness, and outspokenness. In conclusion, our data suggest that the association between homonegative attitudes and stereotyping is of a rather complex nature as we establish several points of convergence and divergence between the perceptions of recruiters which vary in terms of homonegative attitudes.

4.4 Robustness analyses

In response to vignette experiments' known susceptibility to socially desirable responding, we follow Steenkamp and colleagues' (2010) guidelines in further analysing the data for potential social desirability bias. First and foremost, separate moderation analyses suggest that the interview and hiring probabilities of men and women married to a same-sex partner are unrelated to the social desirability scores of recruiters.[20] Second, we calculate that social desirability has a limited association with recruiters' responses to the modern homonegativity scale (correlation coefficient = 0.133).

Finally, we checked whether participants from the United Kingdom and the United States held the same perceptions regarding candidates in a same-sex marriage. A first robustness check indicated that the results of the United States sample strongly matched the results of the full sample.[21] A second robustness check which included two-way interactions between participants from the United Kingdom and the sexual orientations revealed a limited number of small perception differences. More concretely, as shown Appendix Table 10, UK participants perceived male candidates in a same-sex marriage more negatively in terms of open-mindedness ($\beta = -0.659$, $p = 0.008$), softness of personality ($\beta = -0.503$, $p = 0.027$), neatness ($\beta = -0.426$, $p = 0.047$), and emotional sensitivity ($\beta = -0.425$, $p = 0.094$) compared to US participants. In contrast, female candidates in a same-sex marriage

[20] The complete results of our social desirability analyses are depicted in Table 8 in the Appendix.

[21] The full results of the first robustness check with exclusively participants from the United States are presented in Table 9 in the Appendix.

received higher scores in areas of self-awareness ($\beta = 0.579$, $p = 0.015$), leadership ($\beta = 0.554$, $p = 0.018$), dominance ($\beta = 0.440$, $p = 0{,}062$), and team orientation ($\beta = 0.423$, $p = 0.071$) from UK participants than US participants. These results indicate that while the vast body of perceptions is robust across countries, further research is warranted establishing cross-cultural nuances in stereotyping.

5 Conclusion

To investigate the interview probabilities of candidates in same-sex marriages through stereotyping, we conducted a vignette experiment in which genuine recruiters evaluated job candidates who disclosed their marital status. The recruiters evaluated four candidates for one out of twelve job vacancies and shared their perceptions through 24 systematically selected items distilled from the literature and pre-studied among recruiters. In addition to providing causal evidence for a selection of stereotypes recruiters infer from gay men and lesbian women, we tested these stereotypes' role in explaining interview probabilities. Moreover, we advanced our understanding of the literature's contradictory findings related to sexual minority candidates' hiring probabilities by analysing moderators of hiring discrimination.

We find evidence that same-sex marriages generally emit positive and distinct stereotypes for men and women in a hiring context. Specifically, compared to men in different-sex marriages, recruiters perceive men in same-sex marriages as being more outspoken, open-minded, self-aware, emotionally sensitive, neat, intelligent, creative, talkative, and honest, showing more empathy in collaborations, and having more advanced social skills, more of a team orientation, and a more loving and soft personality—but being less pleasant to collaborate with. In contrast, women in same-sex marriages are seen as being more pleasant to collaborate with than their counterparts in different-sex marriages. However, they are also perceived as being more outspoken, open-minded, and self-aware than women in different-sex marriages. In addition, women in same-sex marriages are viewed as being more assertive, independent, and dominant compared to their counterparts in different-sex marriages, whereas this is not the case for men. The aforementioned effects are modest given their range between 1.9 and 7.6 percentage points.

Although same-sex marriages activate many different stereotypes for men and women, only two are significantly associated with their interview probabilities: outspokenness and collaborations with employers, other employees, and customers. These perceptions might strengthen the interview probabilities of women in same-sex marriages, whereas the opposite could be true for men. In addition, the stereotype that candidates married to a same-sex partner are more outspoken is negatively associated with their interview probabilities.

Our moderation analyses provide additional insights regarding the circumstances under which hiring discrimination is more likely to occur. More specifically, we find tendencies that more experience yields a relatively lower hiring premium for candidates in same-sex marriages and that the effects of extracurricular activities (e.g. volunteering) and professional achievements (e.g. diversity ambassadorship) are also dependent on a candidate's sexual orientation. The generally positive

reception of candidates in same-sex marriages and a significant interaction effect with recruiters' homonegative attitudes suggest that our data align well with a concentrated discrimination account (Campbell and Brauer 2021), whereby a minority of employers are responsible for most instances of hiring discrimination. Indeed, the generally positive perception patterns of candidates in same-sex marriages were frequently inversed among recruiters who privately held negative attitudes towards gay individuals.

As suggested in Fric's review (2017), equal opportunity policies could benefit from de-stigmatisation programmes. The current study's findings complement this by calling for an efficient and targeted approach to such programmes as hiring discrimination might be centred around the negative attitudes of a limited proportion of recruiters. In addition, the perceptual patterns we evidenced for both groups of same-sex marriages could guide the development of targeted interventions. An example of such targeted approach could be to first monitor hiring discrimination via correspondence experiments and, subsequently, intervene in units (e.g. sectors) where discrimination against sexual minorities is prevalent. Policymakers could then enact legislation that increases the 'accountability' of individual recruiters. For instance, they could require (discriminating) organisations to adopt panel recruitment in which a team instead of a single recruiter screens resumes (Derous and Ryan 2019). Being held accountable for discriminatory decision-making would discourage homonegative individuals from acting on their prejudice. Moreover, similar interventions that structure communication, procedures, and interactions have been shown to effectively address workplace bias and discrimination of sexual minorities (Treffers et al. 2024).

From a candidate perspective, in particular, men in same-sex marriages could anticipate recruiters' negative attitudes by implementing stigma-countering strategies. For example, Singletary and Hebl (2009) found that candidates presenting themselves as gay experienced fewer negative interactions with potential employers when they displayed more positivity. Applied to our findings, men in same-sex marriages would want to counter perceptions of outspokenness and unpleasant collaborations in the hiring process. An important caveat is that in anticipation of discrimination, men in same-sex marriages in particular should carefully consider the timing of their orientation's disclosure.

One frequently revisited limitation in this paper is the risk of socially desirable responses. In acknowledgment of this risk, we took measures to limit the impact of such bias. On the one hand, we simultaneously varied several candidate characteristics. In doing so, our experiment mimicked the trade-offs made in hiring decisions. On the other hand, we investigated the associations between recruiters' evaluations and social desirable responding (Steenkamp et al. 2010).

Our operationalisation of the candidates' sexual orientation leads to two other limitations of this study. More specifically, sexual orientation was revealed through the candidate's marital status, namely being married to a same-sex partner. First, although this is a strong manipulation of sexual orientation, it could also come with perceptions associated with being married, such as the attributed health, reliability, and ambition. Moreover, certain stereotypes about single or unmarried candidates who are attracted to the same sex may not apply to those

who are married and vice versa. Consequently, the generalisability of our results is limited. Nevertheless, alternative manipulations of sexual orientation come with similar threats in terms of validity. For example, revealing sexual orientation by stating a candidate joined a LGBTQ + organisations could be ambiguous and generate stereotypes related to activism. Second, while we suspect that employers perceive candidates from a same-sex marriage as gay men or lesbian women, these candidates may equally belong to other sexual minority groups such as bisexual, queer, or pansexual individuals. Future research could focus on a more specific disclosure of sexual orientation as a treatment.

A fourth limitation relates to intersectionality of discrimination based on sexual orientation with other discrimination grounds. For example, Pedulla (2014) showed that race and sexual orientation interact in a complex way to moderate discrimination in the United States. However, our study lacks those insights as no specific race or ethnicity was mentioned by which respondents may believe all candidates belong to the majority group (i.e. White European or American depending on the experimental context). This omission further limits the external validity of our experiment for ethnic minorities. Therefore, we recommend other researchers to explore the perceptions of such intersectional discrimination. Not only the interaction with race or ethnicity can be examined, but also those with other dominant or related discrimination grounds such as age and religion (Lippens et al. 2023).

The perception measures employed in this study contain a fifth limitation. From the literature, numerous perceptions appeared to be related to homosexuality, which made it impossible to include all of them in the experiment. To resolve this issue, a preliminary study was conducted to reduce the items to a limited but validated set of perceptions. Although the delineation of these perceptions is based on empirical survey data, there is a risk of researcher-instilled subjectivity to item selection. Moreover, cultural differences can be explored, as our results suggest slight perception differences between participants from the United Kingdom and the United States.

A final limitation of the study's design is its inability to draw unbiased and causal inferences from the conducted mediation analyses (see Gerber and Green (2012), chapter 10 for a thorough discussion of mediation analyses). The associations between perceptions and candidate evaluations could be confounded as perceptions and evaluations were not experimentally manipulated. We cannot exclude the possibility that additional, unobserved perceptions were in play.

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Data availability The dataset generated and analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Conflict of interest The authors declare no competing interests.

General data protection Data processing is organised in line with Ghent University's code of conduct and therefore adheres to the General Data Protection Regulation (GDPR) standards.

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