No country for old gay men: Age and sexuality category intersection renders older gay men invisible

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Abstract

Four studies analyzed how sexual orientation (heterosexual vs. gay) and age categories (young vs. elderly) referring to men are cognitively combined. In Study 1, young gay men were judged as more prototypical of gay men than adult or elderly gay men, while young, adult, and elderly heterosexual men were perceived as equally prototypical of heterosexual men. In Study 2, gay men were stereotyped more by young rather than elderly stereotypical traits, while heterosexual men were not stereotyped in terms of age. In Study 3, elderly men were stereotyped more by heterosexual than gay-stereotypical traits, while young men were not stereotyped in terms of sexual orientation. In Study 4, gay men were judged to be young rather than elderly, while elderly men were judged to be heterosexual rather than gay. Overall, elderly gay men were overlooked when processing their constituent categories, "gay" and "elderly" men. Implications for models of intersectionality are discussed.

Keywords

age categories, intersectionality, multiple categories, sexual orientation categories, stereotyping

Paper received 20 December 2019; revised version accepted 17 December 2020.

The world general population is aging rapidly (United Nations, 2015), including LGBT+ individuals (American Psychological Association [APA], 2018). However, the unique needs of elderly LGBT+ individuals have not always been recognized by policymakers and service providers nor by education and training in gerontology. For instance, elderly gay individuals may continue to hide their sexual orientation especially when accessing health care services (Harrison, 2006; Kia et al., 2019). The fear of discrimination due to sexual orientation has itself been described as a form of abuse experienced by elderly gay individuals, and calls for training aimed at debunking the heteronormative

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presumptions within health care institutions (Cronin & King, 2010).

This age segment of the population may remain particularly underrepresented in research and interventions concerning sexual minorities, which typically target young and young adult LGBT+ individuals (Grossman et al., 2001; Wright & Canetto, 2009). The invisibility of specific intersecting identities, such as Black women, to antiracist and antisexist interventions for example, has been foregrounded by research on intersectionality (Cole, 2009; Crenshaw, 1990). The current study extends this line of research by analyzing whether the "invisibility" of elderly gay men in policy and research contexts may reflect how sexual orientation (heterosexual vs. gay) and age categories (young vs. elderly) are cognitively represented when they intersect.

We tested the hypothesis that the category of gay men, but not the category of heterosexual men, is processed particularly as young by default, while the category of elderly men, but not the category of young men, is processed particularly as heterosexual by default. Support for this hypothesis would demonstrate the value of a social psychological explanation of invisibility in policy and research contexts. Theoretical and empirical papers have thoroughly analyzed social categorization and stereotyping of individuals who display one social identity at a time (e.g., Brewer, 1988; Fiske & Neuberg, 1990; Fiske & Taylor, 1991; Kunda, 1999), leaving partially unaddressed the understanding of how these processes operate when individuals are defined by multiple categories. Furthermore, and by testing this hypothesis, we respond to the request to theorize on multiple category memberships across disciplinary boundaries (Nicolas et al., 2017).

The Sexual Orientation and Age Intersection: Stereotype-Based Models

Studies on the contents of age and sexual orientation stereotypes have developed separately thus far. Elderly adults are stereotyped as warm but not competent, while teenagers and young individuals are stereotyped in terms of neither competence nor warmth (e.g., Cuddy & Fiske, 2002; Fiske et al., 2002; Kite et al., 1991). Elderly adults are also stereotyped as frailer, less energetic, and more thoughtful (Chasteen et al., 2002; Kite et al., 1991; Wright & Canetto, 2009).

Gay men are stereotyped as more gender-nonconforming (i.e., more feminine and less masculine) than heterosexual men, and gay men are also stereotyped as being more communal but as equally agentic as heterosexual men (Barrantes & Eaton, 2018; Blashill & Powlishta, 2009; Carnaghi et al., 2018; Deaux & Lewis, 1984; Kite & Deaux, 1987; LaMar & Kite, 1998; Steffens et al., 2019). Men are processed as heterosexual by default, and are perceived as competent but not warm (Lick & Johnson, 2016). Gay men are not stereotyped as particularly warm nor competent (Brambilla et al., 2011; Clausell & Fiske, 2005; Fiske et al., 2002).

Together, this evidence suggests only a marginal overlap in stereotypes about sexual orientation and age-related categories. Indeed, stereotypes of elderly gay men may have distinct features from the stereotypes of the constituent categories, namely, elderly men and gay men. A few studies suggest that elderly gay men are depicted as particularly alienated from family and friends (Berger, 1982), dramatically lonely (Berger & Kelly, 2001; Hostetler, 2004), acting as sexual predators (Knauer, 2009; Wight et al., 2015), or begging younger gay men for sexual contact (Berger, 1982). These stereotypical features may not be reduced to the constituent stereotypes as in the case of unexpected category combinations (Kunda et al., 1990).

These findings are important given that two prominent models of category intersection consider the between-category common stereotypes as the generative mechanism that guides how categories are combined. The stereotype overlapping model argues that a category defined by one dimension (e.g., Black people), which shares stereotypical elements (e.g., dominant, virile) with a category defined by another dimension (e.g., men), becomes more accessible than in intersection with a category without similar stereotypical

elements (e.g., women). This overlap guides the merging of the categories in question (e.g., Black people are prototypically men; Brooks & Freeman, 2018; Ghavami & Peplau, 2013; Johnson et al., 2012). In contrast, the selective inhibition model posits that common stereotypical elements between two categories enhance the salience of uncommon (i.e., distinctive) stereotypical attributes. These distinctive stereotypical elements guide how perceivers combine information regarding these categories. For instance, if stereotypes of Black people were particularly negative, while stereotypes of elderly individuals included both negative and positive characteristics, then positive stereotypes would be more salient during the evaluation of elderly Black individuals (Kang & Chasteen, 2009; Kang et al., 2014; Remedios et al., 2011).

As there are relatively few common stereotypical features between the sexual orientation and age categories, neither model can produce strong hypotheses about this intersection. Our hypotheses are derived from a different theoretical perspective, namely, norm-based models.

The Sexual Orientation and Age Intersection: Norm-Based Models

Thinking of "people" causes other categories to spring to perceivers' minds. Indeed, perceivers are highly likely to assume that "people" are prevalently White and male (e.g., Devos & Banaji, 2005; Hegarty & Buechel, 2006). Some category memberships become the norm in cultural contexts. For instance, being a man (vs. a woman), or being White (vs. Black), appears to be the default (i.e., the norm) at least in Western culture (Smith & Zárate, 1992; Zárate & Smith, 1990). Various structural and social factors (e.g., the historical dominance of White people in Western culture) together with the advantage of the higher frequency of category members can bestow default status to a category membership (Stroessner, 1996). A specific default can permeate the representation of intersecting categories. For instance, the androcentric default ensures that national category stereotypes resemble stereotypes of men more than stereotypes of women (Eagly & Kite, 1987). Social defaults can also intersect, as in the case of the defaults "White" and "man," which results in the assumption that "people" are conflated with "White men" (Smith & Zárate, 1992; Stroessner, 1996; Thomas et al., 2014; Zárate & Smith, 1990).

At least in Western societies, heterosexuals constitute the norm (Hegarty et al., 2004; Lick & Johnson, 2016). This default is unsurprising given the higher frequency and privileged status of heterosexuals (Herek et al., 1991). Similarly, young adults rather than older adults are the default. Again, this is unsurprising given that there are fewer older people relative to younger and middle-aged people, and positive value is attached to youthful features (North & Fiske, 2015; United Nations, 2015; Webster & Driskell, 1983).

Category combinations that deviate from two normative memberships (e.g., elderly gay individuals; Black women) can suffer from particular intersectional nonprototypicality (Purdie-Vaughns & Eibach, 2008). Intersecting nonprototypical stimuli are particularly difficult to process, resulting in cognitive deficits in memory and accessibility (Fiske et al., 1987; Schug et al., 2015; Sesko & Biernat, 2010; Stroessner, 1996). Knowledge about members of intersecting nonprototypical categories is not activated when processing their constituent nonprototypical categories: Black people implies Black men, and women implies White women. As a consequence, representations of Black men and of White women gain a processing advantage over representations of Black women, both in terms of accessibility and representativeness, when conceptualizing Black people and women (Schug et al., 2015; Stroessner, 1996; Thomas et al., 2014).

If such an intersectional nonprototypicality model applies here, then elderly gay men should be particularly overlooked by both heteronormative defaults for sexual orientation and young defaults for age. Indeed, the intersectional nonprototypicality model makes a strong claim that such defaulting (e.g., to young men) would be more likely to occur when conceptualizing

nonprototypical categories (e.g., gay men) rather than prototypical categories (e.g., heterosexual men). Hence, the young default would shape the representation of gay men more than that of heterosexual men, and the heteronormative default would shape the representation of elderly men more than that of young men. Specifically, when processing information about gay men, young gay men should be more representative than elderly gay men, thus conflating the category of gay men with the category of young gay men. Similarly, when processing elderly men, elderly heterosexual men should be perceived as more typical than elderly gay men, hence gaining an advantage in representing elderly men.

Similar expectations can be derived from research addressing the use of base rates in social judgments (Locksley et al., 1980; Locksley et al., 1982). Indeed, research has shown that perceivers consider the prior probability of a man being heterosexual to exceed the probability of him being gay (Lick & Johnson, 2016). Moreover, perceivers may consider the base rate of young gay men to exceed that of elderly gay men. Various distal causes of the social invisibility of elderly gay men may inflate the prior probability of elderly men being judged to be heterosexual, and of gay men being judged to be young. The media representation of gay men (e.g., Avila-Saavedra, 2009; BBC, 2012; Fejes, 2000; Jankowski et al., 2014; Saucier & Caron, 2008) is particularly skewed towards young individuals. Also, elderly gay men may tend to avoid gay recreational centers and bars due to a perception of ageism within the gay community (Slusher et al., 1996; Wight et al., 2015), and they may sometimes behave in a youthful way to feel accepted (Hajek, 2015). Some elderly gay men born in the postwar period were under enormous pressure to internalize the heteronormative premise (i.e., the presumption of heterosexuality unless informed otherwise) in their early years to pass as heterosexual (Cronin & King, 2010; Harrison, 2006; Rosenfeld, 2009), and thus may avoid coming out at a later stage (Harrison, 2006; Shankle et al., 2003). In sum, the expectations derived by the base-rate model would be similar to those stemming from the intersectional nonprototypicality model: compared to elderly gay men, young gay men should be more representative of gay men, and elderly heterosexual men, compared to elderly gay men, should be more representative of elderly men.

Base rates can account for how knowledge about different social categories intersect (we herein refer to this theoretical approach as the base-rate model), although a formalization of such an account has yet to be found in the literature. Indeed, perceivers do not always accurately rely on a priori beliefs about base rates when making judgments regarding social issues (e.g., Fischhoff & Beyth-Marom, 1983; Kahneman & Tversky, 1973; Lyon & Slovic, 1976; Nisbett & Borgida, 1975). Estimating base rates at the intersection of social categories can be further complicated by covariation judgments. For instance, to estimate the likelihood of a gay man being young requires a person to keep in mind the prior probability of a man being gay over heterosexual and the prior probability of the same man being young over elderly, and how these distinct probabilities interact. Such covariation judgments are cognitively demanding and subject to inaccuracies (e.g., Crocker, 1981). For this reason, an empirical test is necessary to discern whether judgments of representativeness and base-rate estimates are equivalent, related, or distinct at this intersection of the sexual orientation and age categories, and to inform our understanding of the cognitive process in question.

Methodological Information

For all the studies reported in this paper, sample size was informed by the results of power analyses. All the independent and dependent variables are described in the Procedure sections. Data were analyzed using the statistical software JAMOVI (Version 1.1.9.0; 2020).

Study 1

In Study 1, we assessed the perceived representativeness of six male targets, defined by both age (young, middle-aged, elderly) and sexual orientation (gay, heterosexual), with respect to the following four categories of men: gay, heterosexual, young, and elderly men. We also assessed the projected

base rates at each of the six age by sexual orientation intersections represented by the targets.

Based on the intersectional nonprototypicality model, we expected that only the representativeness of gay targets would rely on age information, creating an inverse relationship between the age of gay targets and their representativeness of the category of gay men. We predicted that age would not moderate the representativeness of heterosexual men as heterosexual men (Hypothesis 1a). Similarly, we predicted that heterosexual elderly men would be more representative of the category elderly men than gay elderly men, but that sexual orientation would not affect which targets were more representative of the category young men (Hypothesis 2a). These hypotheses are consistent with the intersectional nonprototypicality model.

In line with the base-rate model, we predicted that the projected base rates would be consistent with previous findings, with a higher percentage of the male population being judged to be both heterosexual rather than gay, and young rather than elderly. Moreover, the base-rate model suggests an interaction caused by a projected low rate of elderly gay men, leading participants to estimate that a higher proportion of gay men in the population are young (Hypothesis 1b), and that a particularly high proportion of elderly men in the population are heterosexual (Hypothesis 2b).

Finally, we calculated correlations between representativeness judgments and base-rate projections to assess whether they were equivalent, related, or independent measures.

Method

Participants. Ninety-one participants from a social psychology course at an Italian university took part in the study. Nine participants either did not complete the representativeness rankings (e.g., missing values on a given ranking) or relied on the same value when ranking different targets; these participants were excluded from the experimental sample. The remaining sample was comprised of 64 women and 18 men (M_{age} = 20.3, SE = 0.55). They self-identified as heterosexual (n = 75), bisexual (n = 6), or other (n = 1). Seventy-seven were Italian citizens, and 78 were native Italian speakers. A sensitivity power analysis (α = .05, 1 − β = .80, N = 82; Cohen's f = .12) suggested that a sample size of 82 participants had enough power to detect a small effect size in a within-participants design (Cohen, 1988).

Material and procedure. The questionnaire started with the representativeness task. Participants read that the experimenter was selecting stimuli for a subsequent experiment and pretesting materials. The task was introduced as follows:

> Before looking at the profiles, you will be asked to think of a specific social group, and the manner in which that group is represented at the societal level. Then, your task will be to look at the profiles and indicate which profile is the most representative of the group you were asked to think of. Hence, it is extremely important that you first think of the manner in which that specific group is represented at the social level and, after having paid attention to all the profiles, and especially to their descriptions, you identify the most representative profile of that specific group.

Participants were then presented with the names of four groups: young men (in Italian: *giovani*), elderly men (in Italian: *anziani*), gay men (in Italian: *omosessuali*), and heterosexual men (in Italian: *eterosessuali*). All four group labels were presented in the masculine plural form and preceded by a masculine plural article (e.g., *gli, i*, in Italian). The order of presentation of the group labels was counterbalanced. Along with the label, participants were presented with six profiles, each comprising a picture of a man with a neutral facial expression and a description which specified the man's sexual orientation (i.e., heterosexual vs. gay) and age (i.e., 27 vs. 43 vs. 66 years). The age range was selected based on previous work referring to individuals whose age is between 19 and 31 years as young adults, between 39 and 55 as middle-aged individuals, and over 65 as elderly individuals (see Ebner et al., 2010; Martin et al., 2019). We herein refer to

the 27-year-old man as the young man, the 43-year-old man as the middle-aged man, and the 66-year-old man as the elderly man. Within each target age, one man was described as gay and one as heterosexual. The experimental assignment of sexual orientation (i.e., heterosexual vs. gay; in Italian: *eterosessuale* vs. *omosessuale*) to the individuals within the same target age was counterbalanced across participants. Pictures were drawn from the FACES database (Ebner et al., 2010), and their perceived age data in FACES matched the ages presented to participants here.[1] These six profiles were presented in one of two different and counterbalanced orders. Participants ranked the profiles from the most to the least representative of the group. Specifically, they were instructed to assign the value 1 to the profile that was the most representative, and to assign decreasing values (i.e., 2, 3, 4, 5, and 6) to those profiles that they considered relatively less representative. Hence, lower values indicated higher representativeness.

The base-rate task was presented second. Participants were instructed to think about the general population and estimate the percentage of each of the following six groups within it: young heterosexual men, middle-aged heterosexual men (in Italian: *eterosessuali adulti*), elderly heterosexual men, young gay men, middle-aged gay men (in Italian: *omosessuali adulti*), and elderly gay men. Again, group labels were presented in the masculine plural form. Participants were instructed to report their estimates in percentages, and the sum of their six estimates should be 100%.

Finally, participants reported their demographics (i.e., age, gender, sexual orientation, citizenship, native language), and were fully debriefed and thanked.

Results

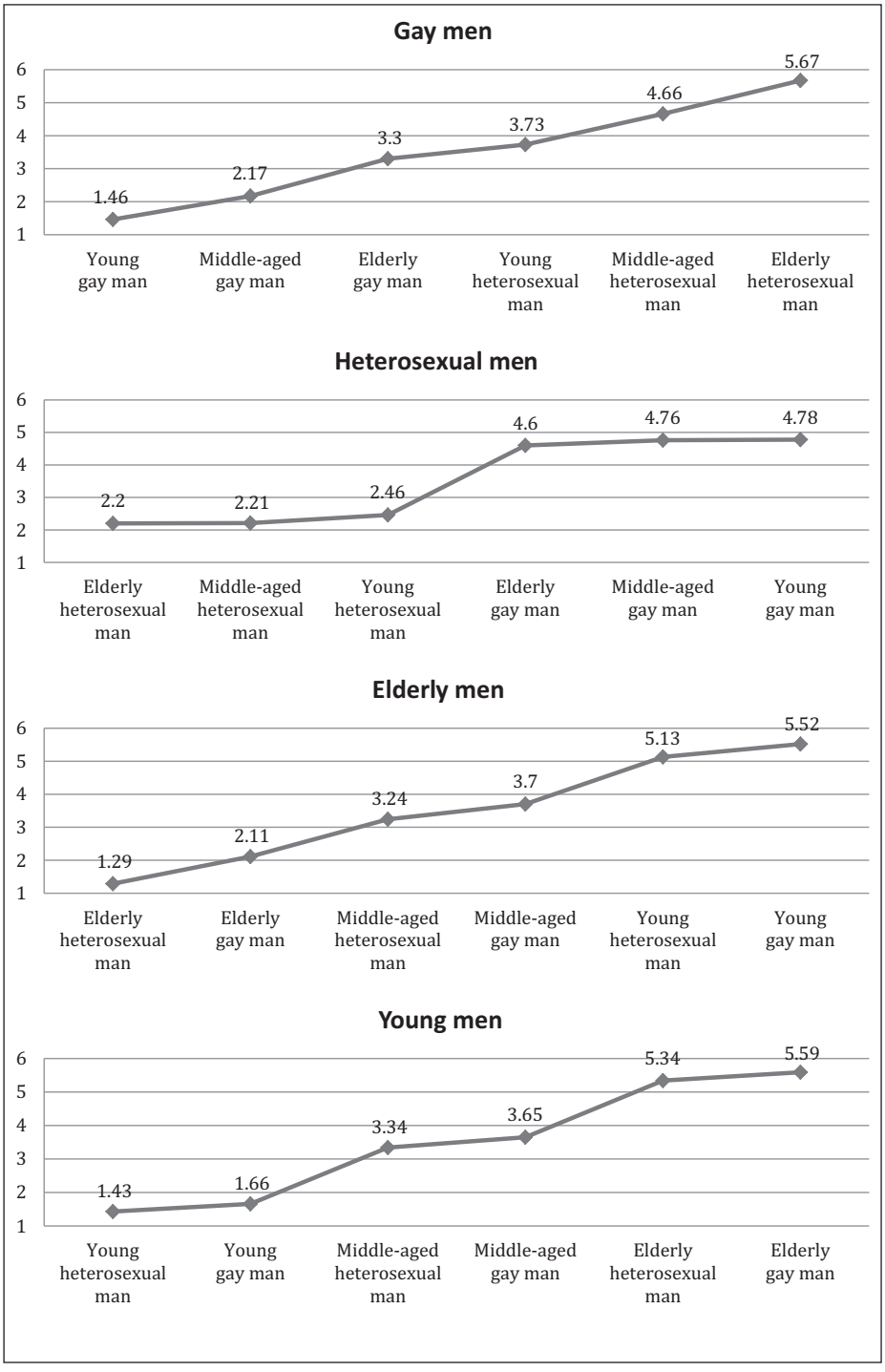
Representativeness rankings. We first assessed the representativeness rankings of the six targets with respect to each of the four target categories (see Figure 1). We used nonparametric Friedman tests, and conducted pairwise comparisons using Wilcoxon rank tests. As five pairwise comparisons between adjacent ranks of the six targets were performed, the p level was set at .01 (i.e., .05/5, Bonferroni correction) to prevent Type I error inflation. The p values we report in what follows have not yet been adjusted.

We analyzed the sexual orientation categories first. For the target category gay men, the omnibus test was significant ($\chi^2 = 283$, $p < .001$); participants ranked the young gay man ($M = 1.46$, $SE = 0.10$) as the most representative, followed by the middle-aged gay man ($M = 2.17$, $SE = 0.10$; $W = 791$, $p < .001$, $d = 0.52$), then the elderly gay man ($M = 3.30$, $SE = 0.13$; $W = 391$, $p < .001$, $d = 0.87$) as well as the young heterosexual man ($M = 3.73$, $SE = 0.13$; $W = 1{,}239$, $p = .03$, $d = .20$); they subsequently ranked the middle-aged heterosexual man ($M = 4.66$, $SE = 0.09$; $W = 494$, $p < .001$, $d = 0.85$), followed by the elderly heterosexual man ($M = 5.67$, $SE = 0.07$; $W = 398$, $p < .001$, $d = 0.96$). For the target category heterosexual men, the omnibus test was significant ($\chi^2 = 208$, $p < .001$). In particular, the elderly ($M = 2.20$, $SE = 0.14$), the middle-aged ($M = 2.21$, $SE = 12$), and the young heterosexual man ($M = 2.46$, $SE = 0.14$; Ws $> 1{,}373$, ps $< .11$, ds < 0.16) were ranked as equally representative. So too were the elderly ($M = 4.60$, $SE = 0.16$), the middle-aged ($M = 4.76$, $SE = 0.10$), and the young gay man ($M = 4.78$, $SE = 0.14$; Ws $> 1{,}540$, ps $> .43$, ds < 0.10). The heterosexual men were all ranked as significantly more representative than the homosexual men (i.e., young heterosexual man vs. elderly gay man; $W = 429$, $p < .001$, $d = 0.91$).

Participants considered gay men as more representative than heterosexual men of the category gay men, and heterosexual men as more representative than gay men of the category heterosexual men. More importantly, and in line with Hypothesis 1a, they considered young men particularly representative of the category gay men but did not use age to assess which targets were the most representative of the category heterosexual men.

We analyzed the age categories next. The omnibus test for the category elderly men was significant ($\chi^2 = 320$, $p < .001$). Participants ranked the

Figure 1. Participants' representativeness rankings of the six targets with respect to each category.



elderly heterosexual man as the most representative ($M = 1.29$, $SE = 0.09$), followed by the elderly gay man ($M = 2.11$, $SE = 0.12$; $W = 616$, $p < .001$, $d = 0.68$), then the middle-aged heterosexual man ($M = 3.24$, $SE = 0.06$; $W = 478$, $p < .001$, $d = 0.78$), the middle-aged gay man ($M = 3.70$, $SE = 0.06$; $W = 1{,}027$, $p < .001$, $d = 0.42$), the young heterosexual man ($M = 5.13$, $SE = 0.10$; $W = 291$, $p < .001$, $d = 1.23$), and the young gay man ($M = 5.52$, $SE = 0.09$; $W = 1{,}066$, $p < .001$, $d = 0.40$). The omnibus test was also significant for the target category young men ($\chi^2 = 363$, $p < .001$). Participants ranked the young heterosexual ($M = 1.43$, $SE = 0.06$) and gay man ($M = 1.66$, $SE = 0.06$; $W = 1{,}322$, $p = .047$, $d = 0.22$) as equivalent and the most representative, followed by the middle-aged heterosexual man ($M = 3.34$, $SE = 0.06$; $W = 69$, $p < .001$, $d = 1.90$) and then the middle-aged gay man ($M = 3.65$, $SE = 0.06$). The difference between the two middle-aged men fell short of significance ($W = 1{,}224.5$, $p = .013$, $d = 0.29$). After the middle-aged gay man, participants ranked the elderly heterosexual man ($M = 5.34$, $SE = 0.08$; $W = 82$, $p < .001$, $d = 1.73$), who was ranked similarly to the elderly gay man ($M = 5.59$, $SE = 0.06$; $W = 1{,}336.5$, $p = .06$, $d = 0.21$). In sum, participants used sexual orientation information to assess the representativeness of targets, as predicted by Hypothesis 2a. Indeed, sexual orientation affected the ranking of targets as representative of elderly men, but not the ranking of targets as representative of young men.

Estimated base rates. Fourteen participants reported estimated base rates whose sum was either below (4 participants) or above (10 participants) 100. One participant did not report estimated base rates. We computed normalized proportions by dividing each participant's percentage estimate for each group by the sum of all of their estimated base rates, such that all six base rates always added up to 1. These normalized base-rate scores were analyzed by means of a 3 (age: young vs. middle-aged vs. elderly individuals) x 2 (sexual orientation: heterosexual vs. gay) ANOVA, with all the variables as within-participants factors. The main effect of age was significant, $F(2, 160) = 18.30$, $p < .001$, $\eta^2 = .05$. Inspections of marginal means indicated that, in line with past research, participants estimated fewer elderly men ($M = 0.136$, $SE = 0.005$) than young men ($M = 0.184$, $SE = 0.005$); $t(160) = 5.43$, $p < .001$, or middle-aged men ($M = 0.180$, $SE = 0.005$); $t(160) = 5.03$, $p < .001$, in the population. The estimated prevalence of young and middle-aged men did not differ, $t(160) = 0.41$, $p = 1.0$. Similarly, as expected, marginal means indicated that participants estimated significantly more heterosexual ($M = 0.221$, $SE = 0.004$) than gay men ($M = 0.113$, $SE = 0.004$) in the population, $F(1, 80) = 161.60$, $p < .001$, $\eta^2 = .33$.

Table 1. Base-rate scores as a function of age and sexual orientation.

	Age		
	Young	Middle age	Elderly
Sexual orientation			
Heterosexual	.214	.242	.206
Gay	.153	.118	.066

Crucially, the Age x Sexual Orientation interaction was significant, $F(2, 160) = 13.50$, $p < .001$, $\eta^2 = .03$ (see Table 1). Post hoc comparisons (Bonferroni correction) were carried out, and we report marginal means. Participants estimated that more gay men in the population were young ($M = 0.153$, $SE = 0.008$) than were either middle-aged ($M = 0.118$, $SE = 0.008$); $t(318) = 2.92$, $p = .056$ (albeit this difference fell short of significance) or elderly ($M = 0.066$, $SE = 0.008$); $t(318) = 7.35$, $p < .001$. The estimated base rates for middle-aged gay men were higher than those for elderly gay men, $t(318) = 4.43$, $p < .001$. In contrast, the estimated base rates of heterosexual men in the population were the same for young men ($M = 0.214$, $SE = 0.008$), middle-aged men ($M = 0.242$, $SE = 0.008$); $t(318) = 2.32$, $p = .31$, or elderly men ($M = 0.206$, $SE = 0.008$); $t(318) = 0.65$, $p = 1.0$. Only the estimated prevalence of middle-aged heterosexual men was significantly higher than the prevalence of elderly heterosexual men, $t(318) = 2.97$, $p = .048$. These findings suggest that, in line with Hypothesis 1b, participants projected that gay

Table 2. Spearman's rho correlation between representativeness task—separately for each group (gay men, heterosexual men, elderly men, and young men)—and the relevant corresponding transformed estimates from the base-rate task.

Representativeness task	Base-rate task
Gay men	Young gay men
Young gay man	$r = -.12, p = .27$
	Middle-aged gay men
Middle-aged gay man	$r = -.15, p = .18$
	Elderly gay men
Elderly gay man	$r = -.11, p = .32$
Heterosexual men	Young heterosexual men
Young heterosexual man	$r = -.22, p = .050$
	Middle-aged heterosexual men
Middle-aged heterosexual man	$r = -.02, p = .86$
	Elderly heterosexual men
Elderly heterosexual man	$r = -.15, p = .17$
Elderly men	Elderly heterosexual men
Elderly heterosexual man	$r = -.18, p = .11$
	Elderly gay men
Elderly gay man	$r = -.09, p = .43$
Young men	Young heterosexual men
Young heterosexual man	$r = -.15, p = .19$
	Young gay men
Young gay man	$r = -.09, p = .44$

men were perceived as less often elderly than middle-aged or young, and, contrary to Hypothesis 2b, heterosexual men were distributed more evenly across age groups, particularly the young and elderly groups.

Moreover, and for each age category, we computed the difference between participants' estimated base rates of heterosexual men and gay men, thus creating an index of participants' projection of heterosexuality as the normative identity for men (i.e., heteronormativity). Participants' projection of heteronormativity was weaker in regard to young men compared to middle-aged men, $t(160) = 3.87$, $p < .001$, and in regard to young men compared to elderly men, $t(160) = 4.95$, $p < .001$, in line with Hypothesis 1b. The projected heteronormativity was similar among elderly and middle-aged men, $t(160) = 1.08$, $p = .85$. Participants projected a similar majority of middle-aged and elderly men to be heterosexual, thus not confirming Hypothesis 2b.

Correlations. A second goal of Study 1 was to assess if judgments of representativeness and base rates were equivalent, related, or independent. We calculated Spearman's rho correlations between representativeness rankings for each of the four target groups and the corresponding base-rate estimates for the same target groups (see Table 2). Such correlations ascertain whether there are relationships between the perceived representativeness of a given target (e.g., a young gay man) with respect to a group as a whole (e.g., gay men) and the estimates of the proportion of that target group (e.g., young gay men) in the population. If this were the case, then representativeness rankings and base rates would seem to be tapping into the same concept. By contrast, as shown in Table 2 and described in what follows, participants' responses in the representativeness ranking task and the estimated base-rates task appeared to be independent of each other. Specifically, when the target group was gay men, the

representativeness rankings of the young, the middle-aged, and the elderly gay man were uncorrelated with base-rate estimates of the proportion of young, middle-aged, and elderly gay men, respectively. When the target group was heterosexual men, the stronger the representativeness of the young heterosexual man, the higher the estimated proportion of young heterosexual men in the population. However, the representativeness rankings of the middle-aged and the elderly heterosexual man were uncorrelated with participants' estimated prevalence of middle-aged and elderly heterosexual men, respectively. When the target group was elderly men, no significant correlation was found between the representativeness of the elderly heterosexual man or the elderly gay man and participants' estimated prevalence of elderly heterosexual men or elderly gay men, respectively. When the target group was young men, no significant correlation was found between the representativeness of the young heterosexual man and the young gay man and the estimated proportion of young heterosexual men and young gay men, respectively.

Discussion

Results of the representativeness ranking task indicated that participants used age information to assess the representativeness of gay men but not that of heterosexual men. Consistent with Hypothesis 1a, the age of male targets was inversely associated with their representativeness as gay men, but it was not associated with their representativeness as heterosexual men. Projected base rates mirrored this pattern, as anticipated by Hypothesis 1b, but they were mainly uncorrelated with representativeness judgments. Hence, both measures triangulate on the conclusion that the category gay men has a graded structure that draws on age as one of its defining features, while the category heterosexual men does not imply age-related features.

Confirming Hypothesis 2a, only among young men were gay men ranked as equally representative as heterosexual men, while heterosexual men were ranked as more representative of elderly men. Hence, representativeness rankings suggested that age categories are not equally heteronormative. In contrast, estimated base rates suggested that heteronormativity is the default for both elderly men and young men, but this default is clearly stronger in the former than in the latter category. Contrary to Hypothesis 2b, the heteronormative default was not particularly strong for elderly men, but particularly weak for young men.

In sum, the results of Study 1 appear to better fit the hypotheses derived from the intersectional non-prototypicality model than from the base-rate model. No manipulation check was included to assure that participants processed both category cues (age and sexual orientation) while performing the representativeness ranking task. Hence, it is possible that participants overlooked the targets' sexual orientation while ranking their representativeness as young men, and the targets' age while ranking their representativeness as heterosexual men. However, this alternative explanation cannot account for why participants clearly processed both sexual orientation while ranking the targets with respect to the category elderly men, and age while ranking them as gay men. As such, the intersectional nonprototypicality model is the most parsimonious explanation for all the data.

Studies 2 and 3 test a corollary of the results of Study 1, namely, that age-related and sexual-orientation-related stereotypes are applied differentially at the intersections of age and sexual orientation categories. The representativeness and estimated base-rate data from Study 1 suggest that the category gay men is better represented by young than elderly men, while the category heterosexual men is equally represented by young and elderly men. The inductive potential of stereotypes is stronger when applied to prototypical category members than to peripheral category members (e.g., Bodenhausen et al., 1995; Brewer et al., 1981; Sherman, 1996). Study 2 tests the hypothesis that stereotypes of young men are applied to gay men more than stereotypes of elderly men are, while both age stereotypes are applied more equally to heterosexual men.

Study 3 examines the sexual orientation stereotyping of age categories. In this case, the results of Study 1 suggest two alternative hypotheses. In line with the intersectional nonprototypicality model, we predicted that the stereotypes of gay and heterosexual men would be applied equally to young men, while stereotypes of heterosexual men would be applied more to elderly men than stereotypes of gay men would. Second, the estimated base rates from Study 1 showed higher estimates of the prevalence of heterosexual over gay men among both elderly and young men, although the heteronormative default was higher for elderly than young men. Accordingly, the estimated base rates of Study 1 and the base-rate model lead to the prediction that both young and elderly men would be stereotyped more as heterosexual men than as gay men, although this effect should be more pronounced for elderly than young men.

Study 2

Method

Participants. Ninety-six participants were recruited. Data were collected in public libraries and student halls in a University in Northern Italy. We excluded three participants who did not rate a given target group, and three additional participants who did not rate all the traits for a given group thus preventing us from computing the average ratings for that group. The remaining sample comprised: $n = 52$ women, $n = 38$ men ($M_{age} = 21.50$, $SE = 0.53$); $n = 84$ self-defined as heterosexual, $n = 6$ as bisexual; $n = 84$ reported Italian as their first language, $n = 2$ reported a first language other than Italian, $n = 3$ reported being bilingual, $n = 1$ did not report this information; $n = 86$ indicated they were Italian, $n = 3$ indicated being non-Italian, $n = 1$ did not report their nationality. A sensitivity power analysis ($\alpha = .05$, $1 - \beta = .80$, $N = 90$; Cohen's $f = .12$) suggested that a sample size of 90 participants had enough power to detect a small effect size in a within-participants design (Cohen, 1988).

Materials and procedure. Participants were presented with four group labels in the grammatical masculine form, each of which was preceded by a masculine plural article (e.g., *gli, i*, in Italian): heterosexual men, gay men, young men, and elderly men. The presentation order of the age groups and sexual orientation groups was counterbalanced, as was the presentation of the two group labels (i.e., young men, elderly men) within the age groups, and the two group labels (i.e., heterosexual men, gay men) within the sexual orientation groups. Each group label was presented along with 12 traits and instructions to indicate, on 7-point scales, the extent to which each trait was typical of the group (1 = *not at all typical*, 7 = *very typical*). Six traits stereotypical of young men and six stereotypical of elderly men (see Table 3 for all traits) were selected on the basis of past research (Chasteen et al., 2002; Wright & Canetto, 2009), and translated into Italian. Finally, participants rated themselves on the same traits and scales before reporting their demographics. As an ancillary goal, we aimed to test whether any observed patterns of intersectional stereotyping were independent of the manner in which perceivers stereotyped themselves on the same dimensions (Kornadt & Rothermund, 2012).

Results

Ratings on the six young stereotypical traits had high reliability in regard to the four target groups (young men: $\omega = .82$; elderly men: $\omega = .73$; gay men: $\omega = .71$; heterosexual men: $\omega = .80$). Also, ratings of elderly stereotypical traits had reasonable reliability across targets (young men: $\omega = .57$; elderly men: $\omega = .73$; gay men: $\omega = .70$; heterosexual men: $\omega = .71$).

Ratings of both young and elderly stereotypes were averaged for all participants and for all target groups. Following the procedure outlined by Judd and Park (1993; see also Carnaghi et al., 2005; Johnston & Coolen, 1995; Judd et al., 2005; Macrae et al., 1993), we calculated the age stereotype score by subtracting the average elderly stereotypical traits from the average young stereotypical traits for each target group. Positive values on the age stereotype score indicated a tendency to stereotype the target group as young,

Table 3. List of stereotypical traits used in Study 2* and Study 3**.

Young men stereotypical traits	Elderly men stereotypical traits
Hasty (*imprudente*)	Shabby (*trascurato*)
Rebellious (*ribelle*)	Cautious (*prudente*)
Disrespectful (*irrispettoso*)	Balanced (*equilibrato*)
Adventurous (*avventuroso*)	Strict (*rigido*)
Flexible (*flessibile*)	Practical (*concreto*)
Open-minded (*aperto*)	Narrow-minded (*chiuso*)
Gay men stereotypical traits	**Heterosexual men stereotypical traits**
Creative (*creativo*)	Leader (leader)
Feminine (*femminile*)	Strong (*resistente*)
Promiscuous (*promiscuo*)	Offensive (*offensivo*)
Oversensitive (*suscettibile*)	Cold (*freddo*)
Elegant (*elegante*)	Determined (*determinato*)
Artistic (*artistico*)	Overbearing (*prepotente*)

Note. The Italian translation of each trait is provided within parentheses.
*Young and elderly men stereotypical traits; **gay and heterosexual men stereotypical traits.

and negative values indicated a tendency to stereotype that group as elderly.

We examined the age stereotype score using a one-way ANOVA with target group as within-participants factor with four levels (young vs. elderly vs. homosexual vs. heterosexual men). The target groups were stereotyped differently, $F(3, 267) = 179.30$ $p < .001$, $\eta^2 = .62$. Post hoc comparisons (Bonferroni correction) were carried out, and marginal means are reported. Young men were the target group with the highest age stereotype score ($M = 1.70$, $SE = 0.11$, all ts $>$ 5.87, ps $< .001$), which was significantly greater than zero, $t(89) = 15.67$, $p < .001$, $d = 1.65$. Elderly men were the target group with the lowest age stereotype score ($M = -1.86$, $SE = 0.11$; all ts > 12.04, ps $< .001$), which was significantly lower than zero, $t(89) = 13.91$, $p < .001$, $d = 1.47$. These results validate the age stereotype measure. Our hypothesis was informed by a significant difference between the age stereotype score of gay men ($M = 0.76$, $SE = 0.11$) and that of heterosexual men ($M = 0.06$, $SE = 0.11$), $t(267) = 4.43$, $p < .001$. The age stereotype score for gay men was significantly greater than zero, indicating that stereotypes of young men were applied to gay men more than stereotypes of elderly men, $t(89) = 7.01$, $p < .001$, $d = 0.74$. However, the age stereotype score for heterosexual men was not different from zero, $t(89) = 0.77$, $p = .44$, $d = 0.08$, indicating that stereotypes of elderly and young men were equally applied to this target group.

Finally, we calculated average measures of participants' self-stereotyping on young stereotypical ($\omega = .69$) and elderly stereotypical traits ($\omega = .49$), and subtracted the latter from the former, as before, to create a measure of age-related self-stereotyping. Participants stereotyped themselves equally on young and elderly stereotypical traits ($M = 0.17$, $SE = 0.14$), $t(89) = 1.26$, $p = .21$, $d = 0.13$ (one-sample t test against zero as a test value). The self-stereotyping score was uncorrelated with the age stereotype score of the target groups (r range: $-.05$ to $.14$, ps $> .19$). We reanalyzed the age stereotype score using ANCOVA, with the four target groups as within-participants variable (as before), and self-stereotyping as continuous variable. The effect of the group was significant, $F(3, 264) = 177.60$, $p < .001$, $\eta^2 = .62$, while the effects of both self-stereotyping, $F(1, 88) = 1.46$, $p = .23$, $\eta^2 = .001$, and the interaction between the two variables, $F(3, 264) = 0.69$, $p = .56$, $\eta^2 = .002$, were not

significant. Self-stereotyping did not impact the stereotyping of these groups.

Discussion

Study 2 found that gay men were stereotyped more as young men than as elderly men, while heterosexual men were stereotyped about equally as young or elderly men. The uneven application of age-related stereotypes to sexual orientation groups is consistent with the findings of Study 1 showing that gay men are particularly prototyped as young gay men, and that a higher proportion of gay men are projected to be young than elderly, while an even distribution of heterosexual men across age groups is presumed. These findings are in line with the claim that participants take advantage of the most prototypical instances and infer stereotypical characteristics that are congruent with this category representation. Importantly, participants' self-stereotyping along age-related characteristics did not alter the aforementioned findings.

Study 3

Method

Participants. Seventy-six participants were recruited for this study. Data were collected in public libraries and student halls in a University in Northern Italy. One participant was excluded as they did not rate all the traits for a given group thus preventing us from computing the average ratings for that group. The final sample comprised: $n = 39$ women, $n = 35$ men, $n = 1$ did not report this information ($M_{age} = 22.7$, $SE = 0.56$); $n = 69$ self-defined as heterosexual, $n = 4$ as bisexual, $n = 1$ as gay, $n = 1$ did not report this information; $n = 65$ reported Italian as their first language, $n = 9$ reported a language other than Italian as their first language, $n = 1$ did not report this information; $n = 64$ indicated they were Italian, $n = 8$ indicated they were non-Italian, $n = 2$ reported a nationality other than Italian, $n = 1$ did not report this information. A sensitivity power analysis ($\alpha = .05$, $1 - \beta = .80$, $N = 75$; Cohen's $f = .14$) suggested that a sample size of 75 participants had enough power to detect a small effect in a within-participants design (Cohen, 1988).

Procedure. The procedure resembled the one used in Study 2. Participants rated the same four target groups, but here on stereotypical traits of either gay men or heterosexual men selected from previous Italian studies on sexual orientation stereotyping (Carnaghi & Maass, 2007; Carnaghi et al., 2019; Carnaghi & Yzerbyt, 2007; Fasoli et al., 2017; see also Table 3). Participants also rated themselves on the same traits and reported their demographics.

Results

For each of the four target groups, reliability was reasonable for the gay stereotypical traits (young men: $\omega = .62$; elderly men: $\omega = .57$; gay men: $\omega = .80$; heterosexual men: $\omega = .72$) and for the heterosexual stereotypical traits (young men: $\omega = .63$; elderly men: $\omega = .61$; gay men: $\omega = .55$; heterosexual men: $\omega = .73$). Ratings of both gay and heterosexual stereotypical traits were averaged for all participants and for all target groups. We calculated the sexual orientation stereotype score by subtracting the average heterosexual stereotypical traits from the average gay stereotypical traits for each target group. Positive values on the sexual orientation stereotype score indicated a preponderance of gay men stereotyping, and negative values indicated a preponderance of heterosexual men stereotyping.

We analyzed the sexual orientation stereotype score by means of an ANOVA with target group as within-participants factor (young vs. elderly vs. gay vs. heterosexual men). A significant main effect of target group was found, $F(3, 222) = 53.30$, $p < .001$, $\eta^2 = .36$. Post hoc comparisons (Bonferroni correction) were carried out, and marginal means are reported. The sexual orientation stereotype score was higher for gay men ($M = 1.27$, $SE = 0.11$) than for heterosexual men ($M = -0.30$, $SE = 0.11$); $t(222) = 10.34$, $p < .001$, and the former was significantly greater than zero, $t(74) = 10.27$, $p < .001$, $d = 1.19$, while the

latter was significantly lower than zero, $t(74) = 3.46$, $p < .001$, $d = 0.40$. This pattern validated the stereotype measure.

More importantly, the sexual orientation stereotype score varied by target age group, and was higher for young men ($M = 0.14$, $SE = 0.11$) than for elderly men ($M = -0.47$, $SE = 0.11$); $t(222) = 4.01$, $p = .001$. The sexual orientation stereotype score for young men did not differ from zero, $t(74) = 1.44$, $p = .15$, $d = 0.17$. Gay and heterosexual stereotypical traits were applied equally to this group. The sexual orientation stereotype score for elderly men was significantly lower than zero, $t(74) = 4.17$, $p < .001$, $d = 0.48$, indicating that heterosexual stereotypical traits were applied to elderly men more than gay stereotypical traits (see supplemental material).

To ascertain whether participants' self-stereotyping influenced this pattern of results, we estimated the reliability of self-stereotyping on gay men stereotypical ($\omega = .60$) and heterosexual men stereotypical traits ($\omega = .65$), and subtracted the latter from the former to create a measure of sexual-orientation-related self-stereotyping. Participants stereotyped themselves equally on gay and heterosexual man stereotypical traits ($M = 0.12$, $SE = 0.15$); $t(74) = 0.83$, $p = .41$, $d = 0.10$ (one-sample t test against zero as a test value). Lower levels of self-stereotyping were associated with a lower level of sexual orientation stereotyping of heterosexual men ($r = .29$, $p < .01$) and elderly men ($r = .25$, $p < .03$). In other words, participants who attributed more heterosexual than gay men stereotypical traits to themselves also showed greater stereotyping of both heterosexual men and elderly men on heterosexual, as compared to gay, men stereotypical traits. The self-stereotyping measure was uncorrelated with the sexual orientation stereotyping of young ($r = .03$, $p = .82$) and gay men ($r = -.02$, $p = .85$). We reanalyzed the main sexual orientation stereotype score using an ANCOVA that included target group as within-participants factor (as before), and self-stereotyping as a continuous variable. Mimicking the pattern of results from the correlation analyses, self-stereotyping was significantly associated with the dependent variable, $F(1, 73) = 5.41$, $p = .02$, $\eta^2 = .01$. More importantly, the effect of group was significant, $F(3, 219) = 54.82$, $p < .001$, $\eta^2 = .36$, as in the main analysis, and it was not moderated by self-stereotyping, $F(3, 219) = 1.60$, $p = .19$, $\eta^2 = .01$.

Discussion

The results of Study 3 indicated that elderly men were associated more with traits stereotypical of heterosexual rather than gay men, while both heterosexual and gay stereotypical traits were applied equally to young men. These results are in line with the predictions of the intersectional nonprototypicality model in regard to the relative sexual orientation stereotyping of elderly and young men. Study 1 showed the representation of the category elderly men to be much more heteronormative than the representation of the category young men. Accordingly, the intersectional nonprototypicality model predicts that elderly men would receive significantly lower sexual orientation stereotype scores than young men, as we observed here. This finding is consistent with the possibility that the prompt to consider elderly men calls only heterosexual men to mind, while the prompt to consider young men calls both gay and heterosexual men to mind.

In addition, these findings about the absolute level of sexual orientation stereotyping are somewhat at odds with the predictions stemming from the base-rate model. Both young and elderly men are assumed a priori to be more likely to be heterosexual than gay (Study 1). If stereotypes followed directly from base rates, then both young and elderly men would be stereotyped more on heterosexual than on gay men traits (i.e., with sexual orientation stereotype scores below zero in Study 3). By contrast, the sexual orientation stereotype score was significantly below zero for elderly men, and it was non significantly above zero for young men. This latter finding suggests that base rates cannot explain the application of stereotypes on their own. Judgments of representativeness and base rates are not equivalent (Study 1), and stereotyping

appears to follow the former more than the latter (Study 3). This interpretation can also parsimoniously explain the results of Study 2; the prompt to consider heterosexual men brings stereotypes associated with young and elderly men to mind, while the prompt to consider gay men brings only the stereotype associated with young men to mind. However, the critical test of the two theories is most evident in Study 3 only. As in Study 2, participants' self-stereotyping along sexual orientation characteristics did not alter the aforementioned findings.

Study 4

The aim of Study 4 was twofold. First, we intended to conceptually replicate the findings of Studies 1–3 with a larger sample, which was more representative in terms of age and more balanced with regard to participant gender. Second, we sought to analyze whether perceivers would use information about a man's sexual orientation to infer his age, and vice versa. Going beyond Studies 1–3, we also assessed perceivers' inferences concerning both the sexual orientation and age of men described as right-handed (in Italian, *destrimane*) and English (in Italian, *Inglese*). As indicated by a recent meta-analysis, left-handedness prevalence lies around 10% (Papadatou-Pastou et al., 2020). The only available data set on the prevalence of the different sexual orientations in Italy indicates that the prevalence of gay individuals has been estimated around 7% (Istituto Nazionale di Statistica [ISTAT], 2012). Hence, it appears that both groups might represent a minority of comparable size. Although the association of handedness and sexuality has been put forward some time ago, and is still under scrutiny (Skorska et al., 2020), the other social category (i.e., English) that we entered in the study is in principle orthogonal to sexual orientation and does not refer to a minority or a particularly stigmatized group. Perceivers' inferences concerning individuals defined by these irrelevant categories provide a baseline assessment of defaulting processes involving sexual orientation and age categories. This comparison allows a further test of the assumption of the nonprototypicality model that there is a particular intersectional invisibility at the conjunction of two nonnormative categories (e.g., elderly gay men). If this is the case, then defaulting in irrelevant categories (e.g., right-handed, English) should resemble defaulting in normative categories (e.g., young, heterosexual) more than it resembles defaulting in nonnormative categories (e.g., elderly, gay). Accordingly, we predicted two patterns of results. First, following Studies 1 and 3, we expected participants to infer that an elderly man was heterosexual to a greater extent than either a young man or a man defined by irrelevant categories were. However, the sexual orientation of a young man and a man defined by irrelevant categories was expected to be similar (Hypothesis 1). In other words, the category of elderly man would be particularly heteronormative. Second, we reasoned that participants would infer that a gay man was young more than either a heterosexual man or a man defined by irrelevant categories were. The inference concerning the age of a heterosexual man was not expected to be different from that concerning the age of a man defined by irrelevant categories (Hypothesis 2). In other words, the gay men category would be prototyped as particularly young.

Method

Participants. Two hundred and thirty-four individuals took part in the study. Five participants did not fill in the questionnaire and were excluded. Ten participants had missing values in the sexual orientation inference task ($n = 9$ did not rate the entire task, $n = 1$ rated only one item) but rated the age inference task (see Procedure section), and three participants had a single missing value in the age inference task. These participants were retained in the experimental sample. The final sample comprised $N = 229$ participants ($n = 97$ men, $n = 132$ women) whose ages ranged from 18 to 69 years ($M = 34.40$, $SE = 0.94$). Due to a material error occurred in the hard-copy questionnaire, sexual orientation was recorded only for $n = 130$ participants who filled in the online version of the questionnaire ($n = 124$ self-identified as

heterosexual, $n = 5$ as bisexual, $n = 1$ did not report this information). A sensitivity power analysis ($\alpha = .05$, $1 - \beta = .80$, $N = 229$; Cohen's $f = .08$) suggested that this sample size was sufficiently powered to detect a small effect in a within-participants design (Cohen, 1988).

Procedure. Data were collected in two subsequent waves. In the first wave, data were gathered via a hard-copy questionnaire ($n = 99$). Data were collected in public libraries and student halls in a University in Northern Italy. In the second wave, data were collected via an online version of the questionnaire ($n = 130$) due to the COVID-19 pandemic. The second wave allowed us to obtain a final sample that was larger than those of Studies 1–3. The questionnaire informed participants that they would read a series of short descriptions of different individuals (i.e., targets), and would be asked to estimate the likelihood that each of these individuals had additional characteristics (for a similar paradigm, see Carnaghi et al., 2008; Rothbart & Lewis, 1988). To clarify the task, participants were provided with this example: "This person is myopic; how likely is it that this person is from the South and is it that this person from the North?" Participants were instructed to report their estimated probabilities as percentages, and that the sum of their two percentages should not exceed 100%.

In the sexual orientation inference task, participants read descriptions of four distinct individual targets. Each description displayed a given name, which was overshadowed by a black line, and a category label. The category labels were: young, elderly, right-handed, and English (e.g., "[name] is young"). Participants estimated the probability percentage of each of these four individual targets being either a gay person or a heterosexual person (i.e., response options; "How likely is it that this person is. . ."; in Italian: "*Con quale probabilità questa persona è. . .*"). It is worth noting that the question concerning the stereotypical inference was worded using the generic term "person" (in Italian, *persona*), which in Italian is of feminine gender. The order of the response options was counterbalanced across participants.

In the age inference task, participants read descriptions of four distinct individual targets. Each description displayed a given name, which was overshadowed by a black line, and a category label. The category labels were: gay, heterosexual, right-handed, and English. Participants estimated the probability percentage of each of these four individual targets being either a young person or an elderly person (the order of response options was counterbalanced across participants).

It is worth noting that, differently from Studies 1–3, the category labels and response options were presented in the singular form and not preceded by a masculine article. The labels young, right-handed, and English all have an opaque grammatical gender in Italian. In contrast, elderly is grammatically marked as masculine. Despite these differences, having included elderly opposite to young in the response options, as well as elderly among the other category labels, likely resulted in androcentric stereotypical inferences. Accordingly, young, right-handed, English, elderly, gay, and heterosexual were treated as indicating male individuals.

The order of presentation of the two inference tasks was counterbalanced across participants. Within each inference task, the order of presentation of the individual targets was counterbalanced in the hard-copy questionnaire, and randomized in the online questionnaire. Demographics (age, gender, sexual orientation) were collected at the end of the study.

Data preparation. For those participants ($n = 4$) who reported a valid estimated probability for one response option (i.e., between 0% and 100%) and a value that was over 100% for the other response option, the latter value was replaced by 100% minus the probability estimated for the former response option. In a further 16 cases, the sum of the two estimated probabilities exceeded 100% (i.e., 75% and 90% = 165%) or was smaller than 100% (i.e., 10% + 80% = 90%). We then computed normalized proportions as in Study 1 (i.e., dividing each participant's estimated probabilities regarding the two options by their sum, and multiplying by 100).

Table 4. Estimated probability (normalized score) as a function of the estimation task and the individual target.

	Individual target			
	Right-handed	English	Young	Elderly
Probability of being: Heterosexual	.556	.565	.580	.677
	Right-handed	English	Gay	Heterosexual
Young	.493	.517	.635	.466

Results

In the sexual orientation inference task (see Table 4), the normalized proportions concerning the estimated probability of the target being heterosexual were analyzed by means of an ANOVA with the individual target variable as within-participants factor (right-handed vs. English vs. young vs. elderly man). The effect of the individual target was significant, $F(3, 657) = 57.90$, $p < .001$, $\eta^2 = .08$. Post hoc comparisons (Bonferroni correction) were carried out, and marginal means are reported. Participants estimated the probability of an elderly man being heterosexual ($M = 0.677$, $SE = 0.02$) to be significantly higher than the probability of a young man ($M = 0.580$, $SE = 0.02$); $t(657) = 9.40$, $p < .001$, an English man ($M = 0.565$, $SE = 0.02$); $t(657) = 10.79$, $p < .001$, or a right-handed man ($M = 0.556$, $SE = 0.02$); $t(657) = 11.63$, $p < .001$, being heterosexual. Also, no difference was found among participants' estimates concerning a young man, an English man, and a right-handed man (ts < 2.23, ps $> .16$). A series of one-sample t tests indicated that each estimated probability pertaining to each individual target was above .50 as the reference value (ts > 6.26, ps $< .001$), thus suggesting that all the individual targets were processed as likely to be heterosexual.

In the age estimation task (see Table 4), the normalized proportions concerning the estimated probability of being young were analyzed by means of the same ANOVA, with the individual target variable as within-participants factor (right-handed vs. English vs. gay vs. heterosexual man). The effect of the individual target was significant, $F(3, 672) = 69.20$, $p < .001$, $\eta^2 = .19$. Participants estimated the probability of a gay man being young ($M = 0.635$, $SE = 0.01$) to be significantly higher than the probability of a heterosexual man ($M = 0.466$, $SE = 0.01$); $t(672) = 13.36$, $p < .001$, an English man ($M = 0.517$, $SE = 0.01$); $t(672) = 9.34$, $p < .001$, or a right-handed man ($M = 0.493$, $SE = 0.01$); $t(672) = 11.20$, $p < .001$, being young. Moreover, participants were equally likely to consider a right-handed man and an English man to be young, $t(672) = 1.87$, $p = .37$, and equally likely to consider a right-handed and a heterosexual man to be young, $t(672) = 2.15$, $p = .19$. Finally, participants anticipated the probability of an English man being young to be higher than the probability of a heterosexual man being young, $t(672) = 4.21$, $p < .001$.

The estimated probability of a gay man being young, $t(224) = 13.30$, $p < .001$, $d = 0.89$, was much higher than the reference value of .50, and this effect was large. The estimated probability of a heterosexual man being young was lower than the reference value, but this effect was small, $t(224) = 3.72$, $p < .001$, $d = 0.25$. The gay man was indeed judged as much more likely to be young than other categories of men. The heterosexual man was judged as more likely to be old than young, while the right-handed man was not, $t(224) = 0.78$, $p = .44$, $d = 0.05$; and a small effect was observed such that the English man was judged as more likely to be young, $t(224) = 2.20$, $p = .03$, $d = 0.15$. In sum, gay men are particularly assumed to be young, unlike other

categories of men, as the nonprototypicality model predicts (see supplemental material).

Discussion

Study 4 was conducted to test the hypothesis that the defaulting in nonnormative categories is particularly strong. In support of this hypothesis, the results of the sexual orientation inference task indicated that the heteronormativity of the elderly men category exceeded that of the young, right-handed, or English men categories. Elderly men, in particular, are presumed to be heterosexual more than other kinds of men, in line with Hypothesis 1. Similarly, results of the age inference task suggested that age norms also differed across categories. The gay man was more often judged to be young than the heterosexual man, or the men in either of the two sexual-orientation-irrelevant categories. Heterosexual men were equally likely to be judged to be young as right-handed men, but slightly less than English men. Apart from this latter comparison, this pattern of results is consistent with Hypothesis 2. A limit of this study lies in the grammatical form in which the stimuli were presented, as we could not rule out that at least certain stimuli could have been processed as referring to both genders.

General Discussion

The present research investigated how sexual orientation and age categories referring to men intersect. Building upon normative models of category crossover (Purdie-Vaughns & Eibach, 2008; Schug et al., 2015; Stroessner, 1996), we proposed that the category of gay men, compared to heterosexual men, is processed as particularly young by default, and that the category of elderly men, more than young men, is processed as particularly heterosexual by default. The current studies provided converging support for these hypotheses. Indeed, the category gay men, but not heterosexual men, has a graded structure that is shaped by information about age, and is better represented by young than elderly exemplars (Study 1). The category elderly men, but not the category young men, has a heteronormative graded structure (Study 1). Consistently, gay men are stereotyped as young, while heterosexual men are not stereotyped in terms of age-related traits (Study 2). Also, elderly men are stereotyped as heterosexual, while young men are not stereotyped as exclusively gay or heterosexual (Study 3). In line with these results, a gay man is more often judged to be young than other kinds of men are, while an elderly man is more often judged to be heterosexual than other kinds of men are (Study 4). Together, these results suggest that elderly gay men are neither representative of gay men (who are prototypically young) nor representative of elderly men (who are prototypically heterosexual), and open up the possibility that this intersectional group might be uniquely overlooked when processing its constituent categories (i.e., gay men and elderly men).

Although both normative models may have influenced how sexual orientation categories are cognitively represented in terms of age, the manner in which age categories are structured upon sexual orientation categories is better accounted for by the intersectional nonprototypicality model. Gay men, but not heterosexual men, are represented and stereotyped as young (Studies 1, 2, and 4). These findings can be explained both by participants' base rates (i.e., a higher prevalence of young than elderly men within the category gay men only) and by the idea that defaults for gay men are mainly exemplars of young men, as opposed to exemplars of other categories of men, including heterosexual men.

The observed findings for the age categories force the difference between base-rate models and the intersectional nonprototypicality model into sharper relief. Indeed, participants projected a higher prevalence of heterosexual than of gay men among both elderly and young men (Studies 1 and 4). By contrast, only among elderly men, and not among young men, were heterosexual men judged to be more representative than gay men (representativeness ranking task; Study 1). In Study 3, elderly men, but not young men, were associated with traits linked to heterosexual men more so than they were associated with traits

linked to gay men. This finding suggests that exemplars of heterosexual men come to mind more than those of gay men when participants are prompted to think about elderly men (Study 3), but more diverse exemplars come to mind when they are prompted to think about young men (in that same study). By using two control categories, Study 4 suggests that the category of elderly men is particularly heteronormative, but that the category of young men is not particularly inclusive of gay men.

The present research further informs cognitive models of category knowledge intersection beyond this specific case. Indeed, the compartmentalization model of category intersection posits a category trade-off in the cognitive system, such that using a given category inhibits alternative categorization (Petsko & Bodenhausen, 2020). Our findings suggest that when handling information pertaining to a nonnormative category (e.g., elderly men, women) of a given category dimension (e.g., age, gender), perceivers assume additional attributes associated with a normative category (e.g., heterosexual men, White) of an additional category dimension (e.g., sexual orientation, ethnicity). These claims are further corroborated by recent empirical evidence. For instance, Tskhay et al. (2016) orthogonally varied the sexual orientation and age of the targets, and found that participants more frequently categorized elderly targets (i.e., a nonnormative category) as heterosexual (i.e., a normative category) rather than gay. Moreover, Tskhay et al. (2016) showed that the age of the target impacted the ability to detect their sexual orientation; participants accurately categorized the sexual orientation of young but not of elderly targets (for the effect of age categories on racial bias, see also Jones & Fazio, 2010).

Our findings might have relevant implications on the practical level. Minority- and majority-group members are both exposed to cultural stereotypes (Devine, 1989), and may end up sharing, albeit to a different extent, the prevailing group representations (Jost et al., 2004; Simon et al., 1991). Researchers have expressed concerns that the young gay generation may internalize the consensual representation of gay individuals as "only young and beautiful," thus experiencing the specific fear of becoming a peripheral ingroup member as they age (Grant, 2010; Wight et al., 2015). Also, the consensual stereotype of gay men as young may enact the invisibility of elderly gay men (Wahler & Gabbay, 1997), and the feeling among this group that they need to act young to gain acceptance within gay communities (Hajek, 2015). Moreover, the overrepresentation of elderly men as heterosexual undermines the institution of inclusive social policies, as in the case of nondiscriminating LGBT retirement communities (Cronin & King, 2010). Finally, the unique heteronormative expectation regarding elderly men may lead this segment of the gay male population to refrain from disclosing health issues stemming from sexual activities to health care workers (Keogh et al., 2004). Although plausible, these practical implications need to be empirically tested to show the impact of these intersectional stereotypes on these target groups.

Although our findings confirm the importance of the normative models to explain the age and sexual orientation intersection, additional considerations concerning the role of stereotype content in the intersection under investigation are worthwhile. To assess whether age categories referring to men are stereotyped differently along characteristics relevant to male sexual orientation (and vice versa), we carefully selected stereotypical traits pertaining to gay men and heterosexual men from previously published studies. Our methods assumed that such traits were semantically unrelated to the stereotype content of the categories of young and elderly men. Future work may test this assumption in regard to these traits, or rely on a larger set of traits when assessing the replicability of these findings.

Moreover, we reported evidence showing that gay men are frequently stereotyped as possessing traits that are also stereotypically attributed to heterosexual women (Deaux & Lewis, 1984; Kite & Deaux, 1987). The overlap between the stereotypes of these two groups suggests one reason why gay men are stereotyped as young; heterosexual women are also culturally represented as

young (e.g., Deuisch et al., 1986; Lauzen & Dozier, 2005), and this specific intersection of age and gender stereotypes might also have shaped the representation of gay men. Additional work is needed to better understand the role of the "gender inversion" nature of the stereotypes about gay men in the default representation of this group as young.

The current research had some limitations. First, we relied on participants' responses to the base-rate task (Study 1) as a proxy for their prior probabilities concerning the age and sexual orientation category intersection. At least two flaws should be acknowledged concerning the assessment of participants' base rates. Indeed, we could not eliminate the possibility that participants shaped their estimates concerning gay men based on those who have publicly disclosed their sexuality. If this were the case, participants based their estimates on a subsample of the referent population. Additionally, participants were asked to report their estimates in percentage terms that summed to 100%. Hence, we could not rule out that participants provided an estimate of the prevalence of gay men tied to the experimental context, as gay men were the only sexual minority mentioned in the stimulus materials. Participants' base-rate estimate concerning gay individuals in the population was higher than the estimated base rate of 25% found in a Gallup poll in a North American sample, for example (Morales, 2011). According to Lick and Johnson (2016), variability in terms of expectations concerning the prevalence of gay people among surveys/studies can be linked to both differences in sample characteristics and the nature of the task. The experimental task of Studies 1 and 4 framed sexual orientation in a binary manner (gay vs. heterosexual), thus likely leading participants to potentially conflate "gay" with all nonheterosexual minorities, and enhancing the estimated commonality of gay people. Both limitations may have contributed to producing an inaccurate assessment of perceivers' base rates.

Second, the samples of the four studies mainly comprised heterosexual people. Future studies may recruit participants of different sexual orientations, thus testing whether the current pattern of results is based on consensually shared beliefs (Devine, 1989). Third, the current research examined only male targets, as is too often the case in psychology (Lee & Crawford, 2007). These findings may be equivalent for female targets, or may be different due to additional operations of androcentric norms (Bailey et al., 2019) or to specific beliefs linking gay men with early death, which may be a consequence of AIDS-related stigmatization (Herek & Glunt, 1993). Fourth, this set of studies did not examine distal causes of these stereotypes, such as the potential role played by selective media exposure or intergroup contact in the defaulting process (Hoffarth & Hodson, 2018). Indeed, the reduced visibility in the media or the limited contact with elderly gay men might contribute to the cognitive representations of gay men as young by default and elderly men as heterosexual by default. Finally, this research was conducted in Italy, which is characterized by both a higher prevalence of homophobic attitudes and a higher prevalence, on average, of elderly individuals as compared to other EU countries (European Commission, 2019; Eurostat 2018). Caution should be taken in relation to the generalization of these results to other countries, but the policy concerns noted at the start of this paper suggest that the intersectional invisibility of elderly gay men is not confined to this one country.

Acknowledgements

We thank Karolyn Close for carefully proofreading a draft of the manuscript. We also thank Bogdan Bjelanovic, Ambra Contardo, Francesco Corradi, and Caterina Lamesta for their assistance in data collection.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: Andrea Carnaghi's contribution was supported by the Institute of Advanced Studies, University of Surrey (2018).

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Supplemental material

Supplemental material for this article is available online.

Note

1. With reference to the FACES database (Ebner et al., 2010), the files of the pictures portraying the two young male individuals were "099_y_m_n_a" and "013_y_m_n_a"; the files of the pictures portraying the two middle-aged male individuals were "038_m_m_n_a" and "179_m_m_n_b"; the files of the pictures portraying the two elderly male individuals were "074_o_m_n_a" and "137_o_m_n_b."

References

American Psychological Association (APA). (2018). *Lesbian, gay, bisexual and transgender aging*. https://www.apa.org/pi/lgbt/resources/aging

Avila-Saavedra, G. (2009). Nothing queer about queer television: Televized construction of gay masculinities. *Media, Culture & Society*, *31*, 5–21. https://doi.org/10.1177/0163443708098243

Bailey, A. H., LaFrance, M., & Dovidio, J. F. (2019). Is man the measure of all things? A social cognitive account of androcentrism. *Personality and Social Psychology Review*, *23*, 307–331. https://doi.org/10.1177/1088868318782848

Barrantes, R. J., & Eaton, A. A. (2018). Sexual orientation and leadership suitability: How being a gay man affects perceptions of fit in gender-stereotyped positions. *Sex Roles*, *79*, 549–564. https://doi.org/10.1007/s11199-018-0894-8

BBC. (2012). *Portrayal of lesbian, gay and bisexual people on the BBC*. http://downloads.bbc.co.uk/diversity/pdf/lgb_portrayal_update_2012_with-quotes.pdf

Berger, R. M. (1982). The unseen minority: Older gays and lesbians. *Social Work*, *27*, 236–242. https://doi.org/10.1093/sw/27.3.236

Berger, R. M., & Kelly, J. J. (2001). What are older gay men like? An impossible question? *Journal of Gay & Lesbian Social Services*, *13*, 55–64. https://doi.org/10.1300/J041v13n04_07

Blashill, A. J., & Powlishta, K. K. (2009). The impact of sexual orientation and gender role on evaluations of men. *Psychology of Men & Masculinity*, *10*, 160–173. https://doi.org/10.1037/a0014583

Bodenhausen, G. V., Schwarz, N., Bless, H., & Wänke, M. (1995). Effects of atypical exemplars on racial beliefs: Enlightened racism or generalized appraisals. *Journal of Experimental Social Psychology*, *31*, 48–63. https://doi.org/10.1006/jesp.1995.1003

Brambilla, M., Carnaghi, A., & Ravenna, M. (2011). Subgrouping e omosessualità: rappresentazione cognitiva e contenuto degli stereotipi di uomini gay [Subgrouping and homosexuality: cognitive representation and content of stereotypes of gay men]. *Psicologia Sociale*, *6*, 71–88. https://doi.org/10.1482/34474

Brewer, M. B. (1988). A dual process model of impression formation. In R. S. Wyer & T. K. Srull (Eds.), *Advances in social cognition: Vol. 1. A dual process model of impression formation* (pp. 1–36). Erlbaum.

Brewer, M. B., Dull, V., & Lui, L. (1981). Perceptions of the elderly: Stereotypes as prototypes. *Journal of Personality and Social Psychology*, *41*, 656–670. https://doi.org/10.1037/0022-3514.41.4.656

Brooks, J. A., & Freeman, J. B. (2018). Conceptual knowledge predicts the representational structure of facial emotion perception. *Nature Human Behaviour*, *2*, 581–591. https://doi.org/10.1038/s41562-018-0376-6

Carnaghi, A., Anderson, J., & Bianchi, M. (2018). On the origin of beliefs about the sexual orientation and gender-role development of children raised by gay-male and heterosexual parents: An Italian study. *Men and Masculinities*. Advance online publication. https://doi.org/10.1177/1097184X18775462

Carnaghi, A., & Maass, A. (2007). In-group and out-group perspectives in the use of derogatory group labels: Gay versus fag. *Journal of Language and Social Psychology*, *26*, 142–156. https://doi.org/10.1177/0261927X07300077

Carnaghi, A., Maass, A., Gresta, S., Bianchi, M., Cadinu, M., & Arcuri, L. (2008). Nomina sunt omina: On the inductive potential of nouns and adjectives in person perception. *Journal of Personality and Social Psychology*, *94*, 839–859. https://doi.org/10.1037/0022-3514.94.5.839

Carnaghi, A., Stragà, M., Coladonato, R., Bianchi, M., & Piccoli, V. (2019). Extrapolating stereotypical information on sexual orientation from race categories: The case of Black and Asian men. *Psychology of Men & Masculinities*, *21*, 224–234. https://doi.org/10.1037/men0000225

Carnaghi, A., & Yzerbyt, V. Y. (2007). Subtyping and social consensus: The role of the audience in the

maintenance of stereotypic beliefs. *European Journal of Social Psychology*, *37*, 902–922. https://doi.org/10.1002/ejsp.402

Carnaghi, A., Yzerbyt, V., Cadinu, M., & Mahaux, N. (2005). Dimmi chi sei e ti dirò cosa penso: processi di steroetipizzazione in contesti di giustificazione [Tell me who you are and I'll tell you what I think: stereotyping and accountability]. *Giornale Italiano di Psicologia*, *32*, 91–110. https://doi.org/10.1421/19692

Chasteen, A. L., Schwarz, N., & Park, D. C. (2002). The activation of aging stereotypes in younger and older adults. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 57*, P540–P547. https://doi.org/10.1093/geronb/57.6.P540

Clausell, E., & Fiske, S. T. (2005). When do subgroup parts add up to the stereotypic whole? Mixed stereotype content for gay male subgroups explains overall ratings. *Social Cognition*, *23*, 161–181. https://doi.org/10.1521/soco.23.2.161.65626

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Erlbaum.

Cole, E. R. (2009). Intersectionality and research in psychology. *American Psychologist*, *64*, 170–180. https://doi.org/10.1037/a0014564

Crenshaw, K. (1990). Mapping the margins: Intersectionality, identity politics, and violence against women of color. *Stanford Law Review*, *43*, 1241–1299. https://doi.org/10.2307/1229039

Crocker, J. (1981). Judgment of covariation by social perceivers. *Psychological Bulletin*, *90*, 272–292. https://doi.org/10.1037/0033-2909.90.2.272

Cronin, A., & King, A. (2010). Power, inequality and identification: Exploring diversity and intersectionality amongst older LGB adults. *Sociology*, *44*, 876–892. https://doi.org/10.1177/0038038510375738

Cuddy, A. J., & Fiske, S. T. (2002). Doddering but dear: Process, content, and function in stereotyping of older people. In T. D. Nelson (Ed.), *Ageism: Stereotyping and prejudice against older persons* (pp. 3–26). MIT Press.

Deaux, K., & Lewis, L. L. (1984). Structure of gender stereotypes: Interrelationships among components and gender label. *Journal of Personality and Social Psychology*, *46*, 991–1004. https://doi.org/10.1037/0022-3514.46.5.991

Deuisch, F. M., Zalenski, C. M., & Clark, M. E. (1986). Is there a double standard of aging? *Journal of Applied Social Psychology*, *16*, 771–785. https://doi.org/10.1111/j.1559-1816.1986.tb01167.x

Devine, P. G. (1989). Stereotypes and prejudice: Their automatic and controlled components. *Journal of Personality and Social Psychology*, *56*, 5–18. https://doi.org/10.1037/0022-3514.56.1.5

Devos, T., & Banaji, M. R. (2005). American = White? *Journal of Personality and Social Psychology*, *88*, 447–466. https://doi.org/10.1037/0022-3514.88.3.447

Eagly, A. H., & Kite, M. E. (1987). Are stereotypes of nationalities applied to both women and men? *Journal of Personality and Social Psychology*, *53*, 451–462. https://doi.org/10.1037/0022-3514.53.3.451

Ebner, N. C., Riediger, M., & Lindenberger, U. (2010). FACES—A database of facial expressions in young, middle-aged, and older women and men: Development and validation. *Behavior Research Methods*, *42*, 351–362. https://doi.org/10.3758/BRM.42.1.351

European Commission. (2019). *Eurobarometer on discrimination: The social acceptance of LGBTI people in the EU*. https://ec.europa.eu/info/sites/info/files/ebs_493_data_fact_lgbti_eu_en-1.pdf

Eurostat. (2018). *Population structure and ageing*. https://ec.europa.eu/eurostat/statistics-explained/index.php/Population_structure_and_ageing

Fasoli, F., Maass, A., Paladino, M. P., & Sulpizio, S. (2017). Gay- and lesbian-sounding auditory cues elicit stereotyping and discrimination. *Archives of Sexual Behavior*, *46*, 1261–1277. https://doi.org/10.1007/s10508-017-0962-0

Fejes, F. (2000). Making a gay masculinity. *Critical Studies in Media Communication*, *17*, 113–116. https://doi.org/10.1080/15295030009388382

Fischhoff, B., & Beyth-Marom, R. (1983). Hypothesis evaluation from a Bayesian perspective. *Psychological Review*, *90*, 239–260. https://doi.org/10.1037/0033-295X.90.3.239

Fiske, S. T., Cuddy, A. J. C., Glick, P., & Xu, J. (2002). A model of (often mixed) stereotype content: Competence and warmth respectively follow from status and competition. *Journal of Personality and Social Psychology*, *82*, 878–902. https://doi.org/10.1037//0022-3514.82.6.878

Fiske, S. T., & Neuberg, S. L. (1990). A continuum of impression formation, from category-based to individuating processes: Influences of information and motivation on attention and interpretation. *Advances in Experimental Social Psychology*, *23*, 1–74. https://doi.org/10.1016/S0065-2601(08)60317-2

Fiske, S. T., Neuberg, S. L., Beattie, A. E., & Milberg, S. J. (1987). Category-based and attribute-based reactions to others: Some informational conditions of stereotyping and individuating processes. *Journal of Experimental Social Psychology*, *23*, 399–427. https://doi.org/10.1016/0022-1031(87)90038-2

Fiske, S. T., & Taylor, S. E. (1991). *Social cognition* (2nd ed.). McGraw-Hill Education.

Ghavami, N., & Peplau, L. A. (2013). An intersectional analysis of gender and ethnic stereotypes: Testing three hypotheses. *Psychology of Women Quarterly*, *37*, 113–127. https://doi.org/10.1177/0361684312464203

Grant, J. M. (2010). *Outing age. Public policy issues affecting lesbian, gay, bisexual and transgender elders*. The Policy Institute of the National Gay and Lesbian Task Force Foundation. https://www.lgbtagingcenter.org/resources/resource.cfm?r=30

Grossman, A. H., D'Augelli, A. R., & O'Connell, T. S. (2001). Being lesbian, gay, bisexual, and 60 or older in North America. *Journal of Gay & Lesbian Social Services*, *13*, 23–40. https://doi.org/10.1300/J041v13n04_05

Hajek, C. (2015). Gay men in early midlife: Intergenerational accommodation for approval, reclaimed status, and distinctiveness. *Language & Communication*, *41*, 46–56. https://doi.org/10.1016/j.langcom.2014.10.003

Harrison, J. (2006). Coming out ready or not! Gay, lesbian, bisexual, transgender and intersex ageing and aged care in Australia: Reflections, contemporary developments and the road ahead. *Gay and Lesbian Issues and Psychology Review*, *2*, 44–53. https://www.researchgate.net/profile/Murray_Drummond/publication/26439710_Ageing_gay_men's_bodies/links/0deec52bde6f65c634000000/Ageing-gay-mens-bodies.pdf#page=6

Hegarty, P., & Buechel, C. (2006). Androcentric reporting of gender differences in APA journals: 1965–2004. *Review of General Psychology*, *10*, 377–389. https://doi.org/10.1037/1089-2680.10.4.377

Hegarty, P., Pratto, F., & Lemieux, A. F. (2004). Heterosexist ambivalence and heterocentric norms: Drinking in intergroup discomfort. *Group Processes & Intergroup Relations*, *7*, 119–130. https://doi.org/10.1177/1368430204041399

Herek, G. M., & Glunt, E. K. (1993). Interpersonal contact and heterosexuals' attitudes toward gay men: Results from a national survey. *Journal of Sex Research*, *30*, 239–244. https://doi.org/10.1080/00224499309551707

Herek, G. M., Kimmel, D. C., Amaro, H., & Melton, G. B. (1991). Avoiding heterosexist bias in psychological research. *American Psychologist*, *46*, 957–963. https://doi.org/10.1037/0003-066X.46.9.957

Hoffarth, M. R., & Hodson, G. (2018). When intergroup contact is uncommon and bias is strong: The case of anti-transgender bias. *Psychology & Sexuality*, *9*, 237–250. https://doi.org/10.1080/19419899.2018.1470107

Hostetler, A. J. (2004). Old, gay, and alone? The ecology of well-being among middle-aged and older single gay men. In G. B. Herdt & de Vries (Eds.), *Gay and lesbian aging: Research and future directions* (pp. 143–176). Springer.

Istituto Nazionale di Statistica (ISTAT). (2012). *La popolazione omosessuale nella società Italiana* [The homosexual population in Italian society]. https://www.istat.it/it/archivio/62168

JAMOVI (Version 1.1.9.0). (2020). The jamovi project (2020) [Computer Software]. https://www.jamovi.org

Jankowski, G. S., Fawkner, H., Slater, A., & Tiggemann, M. (2014). "Appearance potent"? A content analysis of UK gay and straight men's magazines. *Body Image*, *11*, 474–481. https://doi.org/10.1016/j.bodyim.2014.07.010

Johnson, K. L., Freeman, J. B., & Pauker, K. (2012). Race is gendered: How covarying phenotypes and stereotypes bias sex categorization. *Journal of Personality and Social Psychology*, *102*, 116–131. https://doi.org/10.1037/a0025335

Johnston, L., & Coolen, P. (1995). A dual processing approach to stereotype change. *Personality and Social Psychology Bulletin*, *21*, 660–673. https://doi.org/10.1177/0146167295217001

Jones, C. R., & Fazio, R. H. (2010). Person categorization and automatic racial stereotyping effects on weapon identification. *Personality and Social Psychology Bulletin*, *36*, 1073–1085. https://doi.org/10.1177/0146167210375817

Jost, J. T., Banaji, M. R., & Nosek, B. A. (2004). A decade of system justification theory: Accumulated evidence of conscious and unconscious bolstering of the status quo. *Political Psychology*, *25*, 881–919. https://doi.org/10.1111/j.1467-9221.2004.00402.x

Judd, C. M., & Park, B. (1993). Definition and assessment of accuracy in social stereotypes. *Psychological Review*, *100*, 109–128. https://doi.org/10.1037/0033-295X.100.1.109

Judd, C. M., Park, B., Yzerbyt, V. Y., Gordijn, E., & Muller, D. (2005). Attributions of intergroup bias and outgroup homogeneity to ingroup and outgroup others. *European Journal of Social Psychology*, *35*, 677–704. https://doi.org/10.1002/ejsp.281

Kahneman, D., & Tversky, A. (1973). On the psychology of prediction. *Psychological Review*, *80*, 237–251. https://doi.org/10.1037/h0034747

Kang, S. K., & Chasteen, A. L. (2009). The moderating role of age-group identification and perceived threat on stereotype threat among older adults. *International Journal of Aging and Human Development*, *69*, 201–220. https://doi.org/10.2190/AG.69.3.c

Kang, S. K., Chasteen, A. L., Cadieux, J., Cary, L. A., & Syeda, M. (2014). Comparing young and older adults' perceptions of conflicting stereotypes and multiply-categorizable individuals. *Psychology and Aging*, *29*, 469–481. https://doi.org/10.1037/a0037551

Keogh, P., Weatherburn, P., Henderson, L., Reid, D., Dodds, C., & Hickson, F. (2004). *Doctoring gay men: Exploring the contribution of general practice*. SIGMA Research. http://www.sigmaresearch.org.uk/downloads/report04d.pdf

Kia, H., Grace, D., Strike, C., & Ross, L. E. (2019). Across serostatus: A study of subjugation and resistance in older gay men's experiences navigating health care. *Sexuality Research and Social Policy*, *16*, 121–133. https://doi.org/10.1007/s13178-018-0344-y

Kite, M. E., & Deaux, K. (1987). Gender belief systems: Homosexuality and the implicit inversion theory. *Psychology of Women Quarterly*, *11*, 83–96. https://doi.org/10.1111/j.1471-6402.1987.tb00776.x

Kite, M. E., Deaux, K., & Miele, M. (1991). Stereotypes of young and old: Does age outweigh gender? *Psychology and Aging*, *6*, 19–27. https://doi.org/10.1037/0882-7974.6.1.19

Knauer, N. J. (2009). LGBT elder law: Toward equity in aging. *Harvard Journal of Law and Gender*, *32*, 300–358.

Kornadt, A. E., & Rothermund, K. (2012). Internalization of age stereotypes into the self-concept via future self-views: A general model and domain-specific differences. *Psychology and Aging*, *27*, 164–172. https://doi.org/10.1037/a0025110

Kunda, Z. (1999). *Social cognition: Making sense of people*. MIT Press.

Kunda, Z., Miller, D. T., & Claire, T. (1990). Combining social concepts: The role of causal reasoning. *Cognitive Science*, *14*, 551–577. https://doi.org/10.1207/s15516709cog1404_3

LaMar, L., & Kite, M. (1998). Sex differences in attitudes toward gay men and lesbians: A multidimensional perspective. *Journal of Sex Research*, *35*, 189–196. https://doi.org/10.1080/00224499809551932

Lauzen, M. M., & Dozier, D. M. (2005). Maintaining the double standard: Portrayals of age and gender in popular films. *Sex Roles*, *52*, 437–446. https://doi.org/10.1007/s11199-005-3710-1

Lee, I. C., & Crawford, M. (2007). Lesbians and bisexual women in the eyes of scientific psychology. *Feminism & Psychology*, *17*, 109–127. https://doi.org/10.1177/0959353507073096

Lick, D. J., & Johnson, K. L. (2016). Straight until proven gay: A systematic bias toward straight categorizations in sexual orientation judgments. *Journal of Personality and Social Psychology*, *110*, 801–817. https://doi.org/10.1037/pspa0000052

Locksley, A., Bordiga, E., Brekke, N., & Hepburn, C. (1980). Sex stereotypes and social judgment. *Journal of Personality and Social Psychology*, *39*, 821–831. https://doi.org/10.1037/0022-3514.39.5.821

Locksley, A., Hepburn, C., & Ortiz, V. (1982). Social stereotypes and judgments of individuals: An instance of the base-rate fallacy. *Journal of Experimental Social Psychology*, *18*, 23–42. https://doi.org/10.1016/0022-1031(82)90079-8

Lyon, D., & Slovic, P. (1976). Dominance of accuracy information and neglect of base rates in probability estimation. *Acta Psychologica*, *40*, 287–298. https://doi.org/10.1016/0001-6918(76)90032-9

Macrae, C. N., Hewstone, M., & Griffiths, R. J. (1993). Processing load and memory for stereotype-based information. *European Journal of Social Psychology*, *23*, 77–87. https://doi.org/10.1002/ejsp.2420230107

Martin, A. E., North, M. S., & Phillips, K. W. (2019). Intersectional escape: Older women elude agentic prescriptions more than older men. *Personality and Social Psychology Bulletin*, *45*, 342–359. https://doi.org/10.1177/0146167218784895

Morales, L. (2011). *U.S. adults estimate that 25% of Americans are gay or lesbian*. Gallup. http://www.gallup.com/poll/147824/adults-estimate-americans-gay-lesbian.aspx

Nicolas, G., de la Fuente, M., & Fiske, S. T. (2017). Mind the overlap in multiple categorization: A review of crossed categorization, intersectionality, and multiracial perception. *Group Processes & Intergroup Relations*, *20*, 621–631. https://doi.org/10.1177/1368430217708862

Nisbett, R. E., & Borgida, E. (1975). Attribution and the psychology of prediction. *Journal of Personality and Social Psychology*, *32*, 932–943. https://doi.org/10.1037//0022-3514.32.5.932

North, M. S., & Fiske, S. T. (2015). Modern attitudes toward older adults in the aging world: A cross-cultural meta-analysis. *Psychological Bulletin*, *141*, 993–1021. https://doi.org/10.1037/a0039469

Papadatou-Pastou, M., Ntolka, E., Schmitz, J., Martin, M., Munafò, M. R., Ocklenburg, S., & Paracchini, S. (2020). Human handedness: A meta-analysis. *Psychological Bulletin*. Advance online publication. https://doi.org/10.1037/bul0000229

Petsko, C. D., & Bodenhausen, G. V. (2020). Multifarious person perception: How social perceivers manage the complexity of intersectional targets. *Social and Personality Psychology Compass*, *14*, Article e12518. https://doi.org/10.1111/spc3.12518

Purdie-Vaughns, V., & Eibach, R. P. (2008). Intersectional invisibility: The distinctive advantages and disadvantages of multiple subordinate-group identities. *Sex Roles*, *59*, 377–391. https://doi.org/10.1007/s11199-008-9424-4

Remedios, J. D., Chasteen, A. L., Rule, N. O., & Plaks, J. E. (2011). Impressions at the intersection of ambiguous and obvious social categories: Does gay + Black = likable? *Journal of Experimental Social Psychology*, *47*, 1312–1315. https://doi.org/10.1016/j.jesp.2011.05.015

Rosenfeld, D. (2009). Heteronormativity and homonormativity as practical and moral resources: The case of lesbian and gay elders. *Gender & Society*, *23*, 617–638. https://doi.org/10.1177/0891243209341357

Rothbart, M., & Lewis, S. (1988). Inferring category attributes from exemplar attributes: Geometric shapes and social categories. *Journal of Personality and Social Psychology*, *55*, 861–872. https://doi.org/10.1037/0022-3514.55.6.861

Saucier, J. A., & Caron, S. L. (2008). An investigation of content and media images in gay men's magazines. *Journal of Homosexuality*, *55*, 504–523. https://doi.org/10.1080/00918360802345297

Schug, J., Alt, N. P., & Klauer, K. C. (2015). Gendered race prototypes: Evidence for the non-prototypicality of Asian men and Black women. *Journal of Experimental Social Psychology*, *56*, 121–125. https://doi.org/10.1016/j.jesp.2014.09.012

Sesko, A. K., & Biernat, M. (2010). Prototypes of race and gender: The invisibility of Black women. *Journal of Experimental Social Psychology*, *46*, 356–360. https://doi.org/10.1016/j.jesp.2009.10.016

Shankle, M. D., Maxwell, C. A., Katzman, E. S., & Landers, S. (2003). An invisible population: Older lesbian, gay, bisexual, and transgender individuals. *Clinical Research and Regulatory Affairs*, *20*, 159–182. https://doi.org/10.1081/CRP-120021079

Sherman, J. W. (1996). Development and mental representation of stereotypes. *Journal of Personality and Social Psychology*, *70*, 1126–1141. https://doi.org/10.1037/0022-3514.70.6.1126

Simon, B., Glässner-Bayerl, B., & Stratenwerth, I. (1991). Stereotyping and self-stereotyping in a natural intergroup context: The case of heterosexual and homosexual men. *Social Psychology Quarterly*, *54*, 252–266. https://www.jstor.org/stable/2786654

Skorska, M. N., Coome, L. A., Saokhieo, P., Kaewthip, O., Chariyalertsak, S., & VanderLaan, D. P. (2020). Handedness and birth order among heterosexual men, gay men, and sao praphet song in Northern Thailand. *Archives of Sexual Behavior*, *49*, 2431–2448. https://doi.org/10.1007/s10508-020-01774-z

Slusher, M. P., Mayer, C. J., & Dunkle, R. E. (1996). Gays and Lesbians Older and Wiser (GLOW): A support group for older gay people. *The Gerontologist*, *36*, 118–123. https://doi.org/10.1093/geront/36.1.118

Smith, E. R., & Zárate, M. A. (1992). Exemplar-based model of social judgment. *Psychological Review*, *99*, 3–21. https://doi.org/10.1037/0033-295X.99.1.3

Steffens, M. C., Niedlich, C., Beschorner, R., & Köhler, M. C. (2019). Do positive and negative stereotypes of gay and heterosexual men affect job-related impressions? *Sex Roles*, *80*, 548–564. https://doi.org/10.1007/s11199-018-0963-z

Stroessner, S. J. (1996). Social categorization by race or sex: Effects of perceived non-normalcy on response times. *Social Cognition*, *14*, 247–276. https://doi.org/10.1521/soco.1996.14.3.247

Thomas, E. L., Dovidio, J. F., & West, T. V. (2014). Lost in the categorical shuffle: Evidence for the social non-prototypicality of Black women. *Cultural Diversity and Ethnic Minority Psychology*, *20*, 370–376. https://doi.org/10.1037/a0035096

Tskhay, K. O., Krendl, A. C., & Rule, N. O. (2016). Age-related physical changes interfere with judgments of male sexual orientation from faces. *Personality and Social Psychology Bulletin*, *42*, 1217–1226. https://doi.org/10.1177/0146167216653585

United Nations. (2015). *World population ageing 2015*. https://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2015_Highlights.pdf

Wahler, J., & Gabbay, S. G. (1997). Gay male aging: A review of the literature. *Journal of Gay & Lesbian Social Services*, *6*, 1–20. https://doi.org/10.1300/J041v06n03_01

Webster, M., Jr., & Driskell, J. E., Jr. (1983). Beauty as status. *American Journal of Sociology*, *89*, 140–165. https://doi.org/10.1086/227836

Wight, R. G., LeBlanc, A. J., Meyer, I. H., & Harig, F. A. (2015). Internalized gay ageism, mattering, and depressive symptoms among midlife and older gay-identified men. *Social Science & Medicine*, *147*, 200–208. https://doi.org/10.1016/j.socscimed.2015.10.066

Wright, S. L., & Canetto, S. (2009). Stereotypes of older lesbians and gay men. *Educational Gerontology*, *35*, 424–452. https://doi.org/10.1080/03601270802505640

Zárate, M. A., & Smith, E. R. (1990). Person categorization and stereotyping. *Social Cognition*, *8*, 161–185. https://doi.org/10.1521/soco.1990.8.2.161