Age stereotyping of gay and heterosexual men: Why does a minority sexual orientation blur the age of old men, in particular?

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Abstract

This research examined age stereotyping of male individuals displaying intersectional memberships stemming from the combination of age (Young vs. Elderly) and sexual orientation categories (Gay vs. Heterosexual). We found that the age stereotypes of 'Elderly gay men' were blurred: 'Elderly gay men' were stereotyped less on elderly- and more on young-stereotypical traits than both 'Elderly heterosexual men' (Study 1) and 'Elderly men' (Studies 2-4). These findings did not occur with any subtype, as was also not the case for 'Elderly right-handed men' (Study 3), but replicate only with *atypical* subtypes (Study 4). Indeed, the blurring of the age stereotypes for 'Elderly gay men' was

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replicated for an additional atypical subtype, 'Elderly Atheist men', and amplified when the atypical subtype involved 'Elderly men' in combination with 'Athlete men', whose stereotypes implied youthful traits (Study 4). The results informed cognitive models of multiple category stereotyping.

Keywords: stereotyping, age categories, sexual orientation categories, intersectionality, cognitive models

Social perceivers have to manage the complexity of their environment and try to simplify the overburden of information with which they are exposed. To achieve this goal, perceivers spontaneously rely on categorization (Brewer, 1988; Fiske & Neuberg, 1990; Macrae & Bodenhausen, 2000). Indeed, grouping individuals into specific classes leads perceivers to simplify the social context and gain access to a set of beliefs and expectations concerning the members of those categories (i.e., stereotypes; Ashmore & Del Boca, 1981; Brigham, 1971; McCauley et al., 1980). Consequently, perceivers are highly likely to consider such individuals not on the basis of their idiosyncratic characteristics, but on the basis of the category stereotypes (stereotype application; Gilbert & Hixon, 1991; Kunda & Spencer, 2003). Indeed, categorizing individuals in a given group leads perceivers to rely on category stereotypes to form impressions of these individuals, elicits biases that disadvantage these individuals and likely promotes discrimination (Dovidio & Jones, 2019; Fiske & Neuberg, 1990; Tajfel, et al., 1971).

The stereotyping activity is complicated by the fact that individuals display multiple categories at a time, such as, for example, age, gender, race, and sexual orientation. Previous research has demonstrated that when processing an individual simultaneously defined by two different categories (e.g., Asian women), contextual cues can selectively activate a given category (e.g., race) which then dominates the stereotyping of such an individual (Craig & Bodenhausen, 2018; Macrae et al., 1995).

Recently, research has begun to address *how* perceivers stereotype individuals defined by multiple categories when no selective category activation is triggered by contextual cues (Kang & Bodenhausen, 2015). Specifically, accumulated evidence has addressed the stereotyping of category combinations in which one of the categories is assumed to be the default, also referred to as "normality" or the expected value in a given context (Cheryan & Markus, 2020; Devos & Banaji,

2005; Smith & Zárate, 1992; Zárate & Smith, 1990). For instance, in the category combination of 'White women', the race category is the default, as women are prototypically represented as 'White'. As a consequence, the gender stereotyping of 'White women' is mainly driven by the gender category (Stroessner, 1996), as evidenced by the fact that the stereotypes of 'White women' overlaps the stereotypes of women in general (Ghavami & Peplau, 2013; Goff et al., 2008). In a similar vein, 'Black men' are prototyped as heterosexuals by default (Carnaghi et al., 2020; Johnson & Ghavami, 2011; Stragà et al., 2020), and the racial stereotyping of heterosexual Black men seems to be similar to the racial stereotyping of Black men as a whole (Petsko & Bodenhausen, 2019a).

A different case is represented by the combination of two categories in which the two constituents are in contrast with each other. For example, Black people are prototyped as men by default and as heterosexual by default. Hence, 'Black women' and 'Black gay men' appear to be category combinations in which the constituents are at odds with each other (herewith referred to as conflicting intersectional category; Petsko & Bodenhausen, 2019a; Goff et al., 2008). This research demonstrated that race stereotyping of 'Black men' was erased when this category was combined with 'Gay men' (i.e., 'Black gay men' were characterized less as Black and more as White than 'Black men'; Petsko & Bodenhausen, 2019a). The gender stereotyping of 'Women' was blurred when this category intersected the category 'Black' (i.e., 'Black women' were characterized as more masculine and less attractive compared to 'White women'; Goff et al., 2008).

Thus far, the analysis of the stereotyping of conflicting intersectional categories has been limited to its investigation to the racial stereotyping of the inconsistent categories issued by the combination of ethnic and sexual orientation memberships (e.g., 'Black gay men'; Petsko & Bodenhausen, 2019a; see also Preddie & Biernat, 2020; Semrow et al., 2020), and the gender stereotyping of the intersection between ethnic and gender categories (e.g., 'Black women'; Goff et al., 2008; see also Chaney et al., 2020; Craig & Bodenhausen, 2018).

In the current research we extend these lines of investigation by analyzing the age stereotypes perceivers apply to men depending on the simultaneous combination of their age and their sexual

orientation memberships. Previous studies have generally analyzed the stereotypes perceivers associated with the discrete categories of both 'Elderly men' and 'Young men', and showed that the former category is stereotyped as warmer (although not competent), less energetic, more demanding and stubborn, for example, than the latter category (Chasteen et al., 2002; Cuddy & Fiske, 2002; Fiske et al., 2002; Kite et al., 1991; Wright & Canetto, 2009). Yet no study thus far has addressed how age-related stereotypes apply to age categories when intersecting sexual orientation.

The current endeavor is guided by recent findings documenting that the discrete category of 'Elderly men', but not that of 'Young men', is prototyped as 'Heterosexual', and that the discrete category of 'Gay men', but not that of 'Heterosexual men', is prototyped as 'Young' (Carnaghi et al., 2021). Hence, it appears that 'Elderly gay men' could be overlooked when thinking of both 'Elderly men' (who are prototyped as heterosexual by default) and when thinking of 'Gay men' (who are prototyped as young by default). The defaulting processes operating on such discrete categories have likely contributed to leading perceivers in general, and policy makers and health care institutions to assume that old men were heterosexual by default, thus "erasing" the sexuality of 'Elderly gay men' (Cronin & King, 2010; Harrison 2006; Kia et al., 2019). This claim has been further corroborated by experimental research showing that participants miscategorized pictures of the faces of old gay men, but not of young gay men, as heterosexual (Tskhay et al., 2016). An additional, as yet uninvestigated consequence of the cognitive representation of the age and sexual orientation categories in question concerns the possibility that perceivers also "erase" age-related content when cognitively representing 'Elderly gay men'. We reasoned that the combination of 'Elderly men' and 'Gay men', namely two categories presumably in contrast with each other, would lead perceivers to blur the age stereotyping of such a unique category crossover: 'Elderly gay men' might turn out to be characterized as younger and less old than both 'Elderly men' and 'Elderly heterosexual men'. This hypothesis was tested in the current studies.

On the stereotyping of conflicting intersectional categories: a comparison of theoretical accounts

At least three alternative theoretical accounts could explain *how* perceivers apply the stereotypes to intersectional categories in general, and the age stereotypes to the conflicting intersectional category issued by the combination of 'Elderly men' and 'Gay men' in particular.

First, early works on social categorization claimed that perceivers assess the similarity between a set of exemplars and the prototype of a given category (i.e., the best example for that category; Rosch & Mervis, 1975). The similarity is an increasing function of features common to this set of exemplars and the prototype (Tversky, 1977). Research has shown that category stereotypes are less likely to apply to a category member(s) as the number of uncommon characteristics between that member(s) and the category prototype increases (Brewer et al., 1981; Fiske & Neuberg, 1990; Nisbett et al., 1981). Given that 'Elderly gay men' displays an uncommon feature (i.e., sexual orientation) with the prototype 'Elderly men', the former may be less stereotyped on the typical traits of 'Elderly men'. It is worth noting that similar expectations would be formulated not only for conflicting intersectional categories, but also for the category combination whose instances are not inconsistent with each other such as 'Elderly right-handed men'. In fact, any piece of additional information that is uncommon with 'Elderly men', and not only the category information that is at odds with 'Elderly men', could account for the diluted application of the stereotypes of 'Elderly men' to such a category combination.

Thus far, no study has verified these assumptions. In the current research we compared the age stereotyping of conflicting intersectional categories (i.e., Elderly gay men) to the age stereotyping of multiple, albeit not inconsistent categories (e.g., Elderly right-handed men). This model, herewith referred to as the *similarity model,* offers accurate predictions regarding the decreased attribution of elderly-stereotypical traits to both 'Elderly gay men' and 'Elderly right-handed men' compared to 'Elderly men', but it is nearly silent on the prediction regarding the attribution of elderly counter-stereotypical traits to these target groups, namely young-stereotypical traits. Predictions regarding the attribution of both elderly and young-stereotypical traits to 'Elderly gay men' are put forward by two

different models which are herewith referred to as the *stereotype-inconsistent model* and the *non-prototypicality model.*

Second, and according to the *stereotype-inconsistent model*, the manner in which perceivers stereotype a conflicting intersectional category is assumed to be a function of the stereotypes implied by each of the discrete categories (Beale, 1970; Craig & Bodenhausen, 2018; Freeman & Ambady, 2011; Petsko & Bodenhausen, 2019b). For instance, 'Black men' are stereotyped as virile and masculine, and these stereotypical characteristics are at odds with the stereotypes of 'Gay men' who are assumed to be feminine (Carnaghi et al., 2020; Stragà et al., 2020). Hence, the racial prototypicality of 'Black gay men' with respect to 'Black men' would be reduced by the fact that the stereotypes of 'Gay men' are inconsistent with the stereotypical representations of 'Black men'. As a consequence, 'Black gay men' become "deracialized", namely they are stereotyped less on Black-stereotypical traits than 'Black men' (Petsko & Bodenhausen, 2019a). Moreover, 'Black men' are believed to be particularly "poor" (Fiske et al., 2002), while 'Gay men' are stereotyped as having as high status as White people (Barrett & Pollack, 2005; Bettinsoli et al., 2021). Thus, and given the association of the stereotypes of 'Gay men' and 'White people', 'Black gay men' are "whitened", namely they are stereotyped more on White-stereotypical traits than 'Black men' (Petsko & Bodenhausen, 2019a). Recasting the age stereotyping of 'Elderly gay men' within the *stereotype-inconsistent model*, research has acknowledged that 'Elderly men' are particularly stereotyped on traits associated with 'Heterosexual men', which clashes with the stereotypical implications of 'Gay men' (Carnaghi et al., 2021). Hence, 'Elderly gay men' should be stereotyped less on elderly-stereotypical traits compared to 'Elderly men'. 'Gay men' are stereotyped on young-stereotypical traits which run against the stereotypical implications of 'Elderly men' (Carnaghi et al., 2021; Fejes, 2000; Jankowski et al., 2014; Saucier & Caron, 2008). Hence, and compared to 'Elderly men', 'Elderly gay men' should be stereotyped more on young-stereotypical traits which are implicated by the gay-as-young stereotype. In sum, and according to the predictions stemming from the *stereotype-inconsistent model*, 'Elderly gay men' should be "rejuvenated" compared to 'Elderly men'.

We reasoned that if the premises of the stereotype-inconsistent model were appropriate, similar predictions should be extended to intersectional categories involving 'Elderly men' and an inconsistent category whose stereotypes imply attributes related to 'Young men', such as 'Athlete men', as it did the category 'Gay men' (Hummert et al., 1994). Similar to 'Elderly gay men', 'Elderly athlete men' should be "rejuvenated", namely they should be stereotyped less on elderly-stereotypical traits and more on young-stereotypical traits compared to 'Elderly men'. Although testing for the above predictions is of fundamental importance in probing whether conflicting intersectional category stereotyping is indeed driven by the implications derived from the stereotypes of the discrete categories, no study based on these theoretical assumptions has addressed this issue to date.

Third, the manner in which perceivers stereotype a conflicting intersectional category is assumed to be a function of the "non-prototypical status" of such category combination. Indeed, conflicting intersectional categories are subtypes of their respective discrete categories (Purdie-Vaughns & Eibach, 2008). For instance, 'Elderly gay men' jointly possess a low prototypical status relative to both 'Elderly men' and 'Gay men' (Carnaghi et al., 2021). Research rooted in the social cognition demonstrated that atypical subtypes are weakly stereotyped on characteristics typical of the category and are more likely to display characteristics at odds with that category (Bodenhausen et al., 1995; Brewer et al., 1981; Carnaghi et al., 2021; Sherman, 1996). Based on the claims of the *non-prototypicality model*, we expected that compared to 'Elderly men', 'Elderly gay men' would be less stereotyped on elderly-stereotypical traits and more stereotyped on counter-stereotypical traits, namely young-stereotypical traits. If the non-prototypical status of 'Elderly gay men' accounted for the predicted findings, the pattern of the age stereotyping described above should be found for any category combination involving a category that is atypical of 'Elderly men' and that does not necessary imply young-related stereotypical content –as is the assertion of the stereotype-inconsistent model. For instance, 'Atheist men' appears to be inconsistent with 'Elderly men' and does not necessarily bring about the stereotypical content associated with 'Young men' (Hummert et al., 1994). Hence, 'Elderly gay men' as well as 'Elderly atheist men' constitute two atypical subtypes with respect to 'Elderly men'. If the non-prototypical status of such subtypes *per se* accounted for the age

stereotyping of such subtypes, the stereotype of 'Elderly gay men' should not differ from that of 'Elderly atheist men', and both 'Elderly gay men' and 'Elderly atheist men' should be stereotyped less on elderly-stereotypical traits and more on young-stereotypical traits compared to 'Elderly men'.

Overview of Studies

In four studies we tested whether 'Elderly gay men' were stereotyped as less old and younger than 'Elderly heterosexual men' (Study 1) and 'Elderly men' (Studies 2-4). In Study 1, we ascertained whether such a pattern was found only when 'Gay men', but not 'Heterosexual men', was combined with 'Elderly men' and not when intersecting 'Young men'. In Study 2, we further compared the age stereotyping of 'Elderly gay men' and 'Young gay men' to the age stereotyping of the two discrete categories respectively, namely 'Elderly men' and 'Young men'. Study 3 more directly tested the predictions derived from the similarity model. The age stereotyping of 'Elderly men' was compared to that of 'Elderly gay men' and that of the category intersection between 'Elderly men' and an additional, albeit age-unrelated category, namely 'Right-handed men'. Study 4 aimed at gathering preliminary evidence on the predictions issued by the stereotype-inconsistent and non-prototypicality model. We assessed and compared the age stereotyping of 'Elderly men' to that of 'Elderly gay men', and to that of 'Elderly athlete men' and 'Elderly atheist men'. We relied on these two latter category intersections as 'Athlete men' and 'Atheist men' are both inconsistent with 'Elderly men', and 'Athlete men' especially implied young-stereotypical content.

Methodological Information

The sample size for all the studies was based on a sensitivity power analysis using G*Power 3.1 statistical tool (Faul et al., 2009; Faul et al., 2007). Data analyses were conducted only when data collection was closed. We reported and detailed all the independent and dependent variables used in the current studies.

In all studies, we a priori decided to exclude from each experimental sample those participants who skipped the rating of one or more given target groups on one or both stereotypical dimensions (i.e., young- and elderly-stereotypical traits). Moreover, for missing values concerning

participants' ratings pertaining to a specific stereotypical dimension, only those participants who rated at least 5 out of 10 traits of that dimension were retained in the analyses. The exclusion of participants is reported and discussed in each study (see Participants section)[1].

Data were collected online using the Qualtrics survey platform (2020). The on-line link to each of the studies was advertised on social media and instant messaging platforms by a student in charge of data collection. Data were analyzed using the JAMOVI statistical package (2020). To decrease the likelihood of a Type I error in the Post-hoc analyses, we set the significance level using the Bonferroni correction method: the *p* level was obtained by dividing the alpha (i.e., .05) by the number of the post-hoc comparisons performed in each of the four studies. The *p* values we report in each of the studies have not yet been adjusted (see Results section). We report below only the results relevant to our hypotheses (see supporting information for the full analyses).

The measures of direct contact are fully described in the procedure section of each of the studies, and the data concerning these measures are analyzed and discussed in a dedicated section (see supporting information for the correlation analyses).

All the studies received ethical approval from the University of Trieste Ethical Committee.

Study 1

Study 1 aimed to test the premise of our theoretical efforts, that is the gay, but not the heterosexual sexual orientation, in combination with the category of 'Elderly men', but not with the category of 'Young men', would constitute a case of conflicting intersectional category. Previous research demonstrated that 'heterosexual' is a default category for 'Elderly men', while 'Young men' are not prototyped in terms of sexual orientation (Carnaghi et al., 2021). Hence, we would expect that the sexual orientation category information would interfere more with the stereotyping of 'Elderly men' than 'Young men'. Specifically, we expected that compared to 'Elderly heterosexual men', 'Elderly gay men' should be stereotyped less on elderly-stereotypical traits, as predicted by the three theoretical models. Moreover, and as envisaged by the stereotype-inconsistent model and the non-prototypicality model, compared to 'Elderly heterosexual men', 'Elderly gay men' should be

stereotyped more on young-stereotypical traits. Also, 'Elderly heterosexual men' would be stereotyped more on elderly- than on young-stereotypical traits. 'Young heterosexual men' and 'Young gay men' would show similar levels of age stereotyping, these being stereotyped more on young- than elderly-stereotypical traits.

Method

Participants

We recorded thirty-four clicks[2] on the link to the online survey which did not result in any part of the survey being completed. One-hundred and two people participated in the study. Of these, $N = 10$ participants skipped the ratings on either the young-stereotypical traits or the elderly-stereotypical traits of one or more target groups. The final sample comprised $N = 92$ participants (see Table 1 for detailed demographic characteristics).

A sensitivity power analysis with $\alpha = .05$, $1\text{-}\beta = .80$, and $N = 92$, indicated a minimal detectable effect (MDE) size Cohen's $f = .12$. Hence, the smallest effect size which we would be able to detect (at 80% power) with this sample size falls within the small-effect size area (Cohen, 1988).

Materials and Procedure

In line with the procedures outlined by previous studies on stereotyping (Carnaghi et al., 2020; Petsko & Bodenhausen, 2019a), participants were briefed that they would be presented with different social groups and asked to think about how society in general represented each of these groups. After having consented to take part in the experiment, participants were presented with the following labels pertaining to four target groups, one at a time: 'Young heterosexual men' (in Italian: *giovani eterosessuali*), 'Elderly heterosexual men' (in Italian: *anziani eterosessuali*), 'Young gay men' (in Italian: *giovani omosessuali*), and 'Elderly gay men' (in Italian: *anziani omosessuali*). All four target group labels were presented in Italian and in the masculine plural form. The order of the presentation of the target groups was randomized across participants. Each target group was presented along with 20 traits. Ten traits were stereotypical of young men and ten traits were stereotypical of

elderly men (see Table 2 for all traits). Traits were selected on the basis of past research relevant to the scope of the current study and translated to Italian (Carnaghi et al., 2021; Chasteen et al., 2002; Wright & Canetto, 2009). The presentation order of all 20 traits was randomized across participants. Participants indicated the extent to which each trait was typical of the target group in question by means of a 7-point scale, ranging from 1 (*not at all typical*) to 7 (*very much typical*).

Then, participants' amount of intergroup contact with 'Young heterosexual men', 'Elderly heterosexual men', 'Young gay men' and 'Elderly gay men' as the target groups was measured. The order of presentation of the target groups was randomized across participants. For each target group, participants were presented with two items adapted from Shamloo and colleagues (2018; adapted from Voci & Hewstone, 2003): "How many [target group] do you know?" (*None-More than ten*), "How frequently do you have contact with [target group]?" (*Never-Very frequently*). All answers were given on a five-point scale.

At the end of the questionnaire, participants reported their demographics (i.e., age, gender, sexual orientation, citizenship, native language). They were then debriefed and thanked.

Results

Participants' ratings on the ten young-stereotypical traits had good reliability with regard to the four target groups ('Young heterosexual men': $\omega = .86$; 'Elderly heterosexual men': $\omega = .77$; 'Young gay men': $\omega = .86$; and 'Elderly gay men': $\omega = .84$). Also, participants' ratings of elderly-stereotypical traits had good reliability across target groups ('Young heterosexual men': $\omega = .71$; 'Elderly heterosexual men': $\omega = .77$; 'Young gay men': $\omega = .79$; 'Elderly gay men': $\omega = .78$).

Participants' ratings on young-stereotypical traits and elderly-stereotypical traits were averaged separately and for all target groups.

Participants' ratings were analyzed by means of a 2 (target group age: young men vs. elderly men) x 2 (target group sexual orientation: heterosexual vs. gay) x 2 (traits: young-stereotypical traits

vs. elderly-stereotypical traits) ANOVA, with all variables as within-participants factors. For the complete results see supporting information.

Relevant to our hypothesis, the three-way interaction was significant, $F(1, 91) = 47.91$, $p < .001$, $\eta^2_p = .34$ (see Figure 1). Post-hoc comparisons were carried out and marginal means are reported. As eight post-hoc comparisons were performed, the p level was set at .006 (i.e., .05/8, Bonferroni correction); the reported p values have not yet been adjusted. Compared to 'Elderly heterosexual men' ($M = 4.47$, $SE = .10$), participants attributed less elderly-stereotypical traits to 'Elderly gay men' ($M = 3.73$, $SE = .11$; $t(91) = 6.88$, $p < .001$). Also, and compared to 'Elderly heterosexual men' ($M = 2.96$, $SE = .10$), participants attributed more young-stereotypical traits to 'Elderly gay men' ($M = 3.29$, $SE = .11$; $t(91) = 2.92$, $p = .004$). Participants characterized 'Elderly heterosexual men' more by elderly-stereotypical traits than young-stereotypical traits, $t(91) = 12.15$, $p < .001$. 'Elderly gay men' were characterized more by elderly-stereotypical traits than young-stereotypical traits, $t(91) = 3.08$, $p = .003$. In sum, both 'Elderly heterosexual men' and 'Elderly gay men' were characterized as elderly men, but 'Elderly gay men' were stereotyped as less old and younger than 'Elderly heterosexual men'.

Moreover, participants equally attributed elderly-stereotypical traits to both 'Young heterosexual men' ($M = 3.12$, $SE = .08$) and 'Young gay men' ($M = 3.07$, $SE = .10$; $t(91) = 0.548$, $p = 1.000$), and equally attributed young-stereotypical traits to both 'Young heterosexual men' ($M = 4.39$, $SE = .11$) and 'Young gay men' ($M = 4.10$, $SE = .12$; $t(91) = 2.48$, $p = .015$). Also, 'Young heterosexual men' were characterized more by young-stereotypical traits than elderly-stereotypical traits, $t(91) = 9.98$, $p < .001$ as well as 'Young gay men' were stereotyped more by young- than elderly-stereotypical traits, $t(91) = 7.25$, $p < .001$. Hence, both 'Young gay men' and 'Young heterosexual men' were, to a similar extent, stereotyped more as young than as elderly men.

Discussion

The results from Study 1 showed that the gay, but not the heterosexual sexual orientation, affected the age stereotyping of elderly target groups, but not that of young target groups.

Specifically, 'Elderly heterosexual men' were characterized more as elderly than young. 'Elderly gay men' were characterized as less elderly than 'Elderly heterosexual men', as predicted by the three models. Moreover, 'Elderly gay men' were stereotyped as younger than 'Elderly heterosexual men' as more specifically predicted by the stereotype-inconsistent and non-prototypicality model. By contrast, the age stereotyping of 'Young heterosexual men' and 'Young gay men' did not differ from each other and these target groups were both stereotyped more on young- than elderly-stereotypical traits.

These patterns of results indicated that the gay, and not the heterosexual sexual orientation category, especially in combination with the category of 'Elderly men', and not with the category of 'Young men', is highly likely to constitute a conflicting intersectional category. Moreover, these results provide preliminary evidence attesting that the stereotype-inconsistent model and the non-prototypicality model could provide a more parsimonious account for the stereotyping of 'Elderly gay men' than the similarity model.

Study 2

Study 2 was designed to further compare predictions derived from the similarity model to those derived from both the stereotype-inconsistent model and the non-prototypicality model. To attain this aim, and differently from Study 1, we compared the age stereotyping of 'Elderly gay men' and 'Young gay men' to the age stereotyping of the two discrete categories respectively, namely 'Elderly men' and 'Young men'.

According to both the stereotype-inconsistent model and the non-prototypicality model, the gay sexual orientation information would dramatically affect the age stereotyping of 'Elderly men' but not that of 'Young men', albeit for different reasons. While 'Elderly gay men' would be stereotyped less on elderly- and more on young-stereotypical traits than 'Elderly men', 'Young gay men' would still be characterized more on young- than on elderly-stereotypical traits. By contrast, as discussed in the introduction, the similarity model would provide an analogous account for the stereotyping of conflicting intersectional categories as well as category combinations whose constituents are not in conflict with each other. As both 'Elderly gay men' and 'Young gay men'

shared an uncommon feature with 'Elderly men' and 'Young men' respectively, the stereotypes associated with the discrete categories would be less applied to the more specialized subsets, namely 'Elderly gay men' and 'Young gay men'. Hence, 'Elderly gay men' should be stereotyped less than 'Elderly men' on the elderly-stereotypical traits, while 'Young gay men' should be less stereotyped than 'Young men' on the young-stereotypical traits.

Method

Participants

We recorded sixty-seven clicks[2] on the link to the online survey which did not result in any part of the survey being completed. One-hundred and thirty-six people participated in the study. Of these, $N = 16$ participants skipped the ratings on either the young-stereotypical traits or the elderly-stereotypical traits of one or more target groups. Furthermore, $N = 1$ rated less than 5 out of 10 traits of the young-stereotypical dimension of a given target group. The participant was excluded from the experimental sample. The final sample comprised $N = 119$ participants (see Table 1 for detailed demographic characteristics).

A sensitivity power analysis, with $\alpha = .05$, $1\text{-}\beta = .80$, and $N = 119$, indicated a minimal detectable effect (MDE) size Cohen's $f = .11$. Hence, the smallest effect size which we would be able to detect (at 80% power) with this sample size falls within the small-effect size area (Cohen, 1988).

Materials and Procedure

The experimental procedures were identical to those from Study 1. All participants were presented with the following labels concerning four target groups one at a time: 'Young men' (in Italian: *giovani*), 'Elderly men' (in Italian: *anziani*), 'Young gay men' (in Italian: *giovani omosessuali*), and 'Elderly gay men' (in Italian: *anziani omosessuali*). All four target group labels were presented in the masculine plural form, and their order of presentation was randomized across participants. Participants' age stereotyping of the target groups was assessed as in Study 1. Also,

participants' amount of intergroup contact with 'Young gay men' and 'Elderly gay men' were measured as in Study 1.

At the end of the questionnaire, participants reported their demographics (i.e., age, gender, sexual orientation, citizenship, native language). They were then debriefed and thanked.

Results

Participants' ratings on the ten young-stereotypical traits had good reliability with regard to the four target groups ('Young men': ω = .74; 'Elderly men': ω = .75; 'Young gay men': ω = .79; and 'Elderly gay men': ω = .82). Also, participants' ratings of elderly-stereotypical traits had good reliability across target groups ('Young men': ω = .65; 'Elderly men': ω = .65; 'Young gay men': ω = .73; 'Elderly gay men': ω = .79).

Participants' ratings on young-stereotypical traits and elderly-stereotypical traits were averaged separately and for all target groups.

Participants' ratings were analyzed by means of a 2 (target group age: young men vs. elderly men) x 2 (target group sexual orientation: gay vs. no info) x 2 (traits: young-stereotypical traits vs. elderly-stereotypical traits) ANOVA, with all variables as a within-participants factor. For the complete results of this study see supporting information.

The three-way interaction was significant, $F(1, 118) = 185.53$, $p < .001$, $\eta^2_p = .61$ (see Figure 2). Post-hoc comparisons were carried out and marginal means are reported. As in Study 1, eight post-hoc comparisons were performed and the p level was set at .006 (i.e., .05/8, Bonferroni correction). The reported p values have not yet been adjusted. Compared to 'Elderly men' ($M = 4.85$, $SE = .06$), participants attributed less elderly-stereotypical traits to 'Elderly gay men' ($M = 3.76$, $SE = .09$; $t(118) = 11.89$, $p < .001$). Also, and with respect to 'Elderly men' ($M = 2.75$, $SE = .07$), participants attributed more young-stereotypical traits to 'Elderly gay men' ($M = 3.58$, $SE = .09$; $t(118) = 8.82$, $p < .001$). Participants characterized 'Elderly men' more by elderly-stereotypical traits than young-stereotypical traits, $t(118) = 19.48$, $p < .001$. Also, both elderly- and young-stereotypical traits were

equally attributed to 'Elderly gay men', $t(118) = 1.54$, $p = .126$. Hence, 'Elderly men' were characterized as elderly men, and this was not the case for 'Elderly gay men' who were stereotyped as less old and younger than 'Elderly men'.

Moreover, participants equally attributed elderly-stereotypical traits to both 'Young men' and 'Young gay men' ($M = 2.77$, $SE = .07$; $t(118) = 1.08$, $p = .282$), but attributed less young-stereotypical traits to 'Young gay men' ($M = 4.54$, $SE = .08$) than to 'Young men', $t(118) = 8.53$, $p < .001$. 'Young men' were characterized more by young-stereotypical traits ($M = 5.21$, $SE = .06$) than elderly-stereotypical traits ($M = 2.84$, $SE = .06$; $t(118) = 26.38$, $p < .001$). Also, 'Young gay men' were stereotyped more by young- than elderly-stereotypical traits, $t(118) = 17.10$, $p < .001$. Hence, 'Young men' and 'Young gay men' were stereotyped more as young than as elderly, although the attribution of young-stereotypical traits to 'Young men' was stronger than the attribution of these traits to 'Young gay men'.

Discussion

The results from Study 2 suggest that 'Elderly gay men' were characterized more by young- and less elderly-stereotypical traits than 'Elderly men'. By contrast, 'Young gay men' were less characterized by young traits compared to 'Young men', while no difference occurred in terms of the attribution of elderly-stereotypical traits to both 'Young gay men' and 'Young men'. This pattern of results corroborates the claim based on Study 1 that the gay sexual orientation information concerning young and elderly men played a different role in the age stereotyping of such categories. In the case of 'Young gay men', it appears that the information regarding homosexuality enhanced the dissimilarity between this target group and the prototype of 'Young men', thus decreasing but not modifying the age stereotyping of 'Young gay men' compared to 'Young men'. This pattern of results seemed to be in line with the prediction made by the similarity model. On the contrary, the age stereotyping of 'Elderly gay men' appears to fit the hypotheses derived from both the stereotype-inconsistent model and the non-prototypicality model.

These findings suggest that the stereotyping of conflicting intersectional categories is predicted by both the stereotype-inconsistent model and the non-prototypicality model, while the predictions stemming from the similarity model do not apply to conflicting intersectional categories, as in the case of 'Elderly gay men', but may involve the stereotyping of a non-conflicting category combination such as 'Young gay men'.

Study 3

In Study 3 we compared the age stereotyping of 'Elderly men', 'Elderly gay men', and 'Elderly right-handed men' (in Italian: *destrimani*). We decided to rely on '*Right-handed men'*, as this category information is highly likely to be non-diagnostic, irrelevant to and not conflicting with the age categories (see Carnaghi et al., 2021). If the similarity model accounts for the age stereotyping of 'Elderly right-handed men', then we should find that 'Elderly right-handed men' were less stereotyped on elderly-stereotypical traits than 'Elderly men', but equally stereotyped on young-stereotypical traits. Also, 'Elderly right-handed men' would be stereotyped more on elderly-stereotypical traits than young-stereotypical traits.

In sharp contrast, we expected that 'Elderly gay men' would be stereotyped less on elderly- and more on young-stereotypical traits compared to both 'Elderly men' -as in Study 2- and 'Elderly right-handed men'. If this were the case, the predictions of the similarity model would be limited to non-conflicting category combinations only, while the age stereotyping of conflicting intersectional categories would be better predicted by both the stereotype-inconsistent model and the non-prototypicality model.

Method

Participants

We recorded twenty-three clicks[2] on the link to the online survey which did not result in any part of the survey being completed. One-hundred and fifty-nine people participated in the study. Of these, $N = 32$ participants skipped the ratings on either the young-stereotypical traits or the elderly-

stereotypical traits of one or more target groups. Furthermore, $N = 1$ rated less than 5 out of 10 traits of the young-stereotypical dimension and on the elderly-stereotypical dimension of a given target group. The final sample comprised $N = 126$ participants (see Table 1 for detailed demographic characteristics).

A sensitivity power analysis (ANOVA: repeated measures, within factors), with $\alpha = .05$, $1\text{-}\beta = .80$, $N = 126$, indicated a minimal detectable effect (MDE) size Cohen's $f = .11$. Hence, the smallest effect size which we would be able to detect (at 80% power) with this sample size falls within the small-effect size area (Cohen, 1988).

Materials and Procedure

The experimental procedures were identical to those of Studies 1 and 2 except for the target group labels. In this experiment participants were presented with the labels of three target groups, one at a time: 'Elderly men' (in Italian: *anziani*), 'Elderly gay men' (in Italian: *anziani omosessuali*), and 'Elderly right-handed men' (in Italian: *anziani destrimani*). All three target group labels were presented in the masculine plural form, and their order of presentation was randomized across participants. Participants rated each target group on the 20 traits as in Studies 1 and 2. Also, participants' amount of intergroup contact with 'Elderly gay men' and 'Elderly right-handed men' target groups was measured with the same items used in Studies 1 and 2. At the end of the questionnaire, participants reported their demographics (i.e., age, gender, sexual orientation, citizenship, native language). They were then debriefed and thanked.

Results

Participants' ratings on the ten young-stereotypical traits had good reliability with regard to the four target groups ('Elderly men': $\omega = .80$; 'Elderly gay men': $\omega = .84$; and 'Elderly right-handed men': $\omega = .87$). Also, participants' ratings of elderly-stereotypical traits had good reliability across target groups ('Elderly men': $\omega = .75$; 'Elderly gay men': $\omega = .83$; 'Elderly right-handed men': $\omega = .84$).

Participants' ratings on young-stereotypical traits and elderly-stereotypical traits were averaged separately and for all target groups.

Participants' ratings were analyzed by means of a 3 (target group information: no info vs. gay vs. irrelevant) x 2 (traits: young-stereotypical traits vs. elderly-stereotypical traits) ANOVA, with all variables as within-participants factors. For the complete results of this study see supporting information. The predicted interaction between target group information and traits was statistically significant, $F(2, 250) = 92.61$, $p < .001$, $\eta^2_p = .43$ (see Figure 3). Post-hoc comparisons were carried out and marginal means are reported. As nine post-hoc comparisons were performed, the p level was set at < .006 (i.e., .05/9 = .0055, Bonferroni correction) and the reported p values have not yet been adjusted. Compared to 'Elderly men' ($M = 4.61$, $SE = .07$), participants attributed less elderly-stereotypical traits to 'Elderly gay men' ($M = 3.82$, $SE = .09$; $t(125) = 9.44$, $p < .001$). Also, and with respect to 'Elderly men', participants attributed less elderly-stereotypical traits to 'Elderly right-handed men' ($M = 4.38$, $SE = .09$; $t(125) = 3.06$, $p = .003$). Moreover, participants attributed less elderly-stereotypical traits to 'Elderly gay men' compared to 'Elderly right-handed men', $t(125) = 7.35$, $p < .001$.

Compared to 'Elderly men' ($M = 2.77$, $SE = .08$), participants attributed more young-stereotypical traits to 'Elderly gay men' ($M = 3.49$, $SE = .09$; $t(125) = 9.85$, $p < .001$). By contrast, participants equally attributed young-stereotypical traits to both 'Elderly men' and 'Elderly right-handed men' ($M = 2.80$, $SE = .08$; $t(125) = 0.66$, $p = .508$). Participants attributed more young-stereotypical traits to 'Elderly gay men' compared to 'Elderly right-handed men', $t(125) = 8.96$, $p < .001$.

Participants characterized 'Elderly men' more by elderly-stereotypical traits than young-stereotypical traits, $t(125) = 16.50$, $p < .001$. Participants equally attributed both elderly- and young-stereotypical traits to 'Elderly gay men', $t(125) = 2.56$, $p = .012$. Participants characterized 'Elderly right-handed men' more by elderly-stereotypical traits than young-stereotypical traits, $t(125) = 14.22$, $p < .001$.

Discussion

The results of Study 3 showed that 'Elderly right-handed men' were less characterized by elderly traits compared to 'Elderly men', while no difference occurred in terms of attribution of young-stereotypical traits to both 'Elderly right-handed men' and 'Elderly men'. This pattern of stereotyping is consistent with the idea that the right handedness information concerning the elderly men decreased the similarity between this target group and the prototype of 'Elderly men', thus lessening but not modifying the age stereotyping of 'Elderly right-handed men' compared to 'Elderly men'. Replicating the results of Study 2, 'Elderly gay men' were characterized more by young- and less elderly-stereotypical traits than 'Elderly men'. Importantly, 'Elderly gay men' were characterized more by young- and less by elderly-stereotypical traits than 'Elderly right-handed men'.

Together, these results suggest that a similarity-based mechanism could account for the age stereotyping of 'Elderly right-handed men' but not of 'Elderly gay men', whose observed stereotyping was in line with the predictions of both the stereotype-inconsistent model and the non-prototypicality model. Said otherwise, the similarity model appears to be effective in accounting for the stereotyping of category combinations not at odds with each-other, while the predictions of the stereotype-inconsistent model and the non-prototypicality model seem to better fit the stereotyping of conflicting intersectional categories.

Study 4

In Study 4 we furthered our understanding of the underpinnings of the age stereotyping of 'Elderly gay men' by testing the predictions of the stereotype-inconsistent model and the predictions stemming from the non-prototypicality model. To attain this aim, the age stereotyping of 'Elderly gay men' was compared to the age stereotyping of the conflicting intersectional category resulting from the combination of 'Elderly men' with a category that was inconsistent with 'Elderly men'. More specifically, we relied on two different inconsistent categories, namely 'Athlete men' and 'Atheist men'. Both categories were inconsistent with the category of 'Elderly men', who are assumed to be feeble/sedentary as well as religious (Hummert et al., 1994; Carnaghi et al., 2021). Importantly, while

'Athlete men' implied young-related traits, this was less the case for the 'Atheist men' category. This claim was corroborated in a follow-up study (see supporting information) showing that the category 'Athlete men' was stereotyped more by young- than elderly-stereotypical traits, while 'Atheist men' was equally stereotyped on both young- and elderly-stereotypical traits. Also, 'Athlete men' were stereotyped more on young-stereotypical traits than 'Atheist men', while both 'Athlete men' and 'Atheist men' displayed a similar level of stereotyping on elderly-stereotypical traits. In sum, 'Athlete men' is highly likely to bring about the stereotypical content associated with 'Young men', while 'Atheist men' does not appear to convey specific age-related stereotypical content.

According to the stereotype-inconsistent model, both 'Elderly gay men' and 'Elderly athlete men', but not 'Elderly atheist men', should be "rejuvenated" compared to 'Elderly men'. Since 'Gay men' and 'Athlete men' are at odds with 'Elderly men', and because their stereotypes involved young-stereotypical traits, 'Elderly gay men' and 'Elderly athlete men' should be stereotyped less on elderly-stereotypical traits and more on young-stereotypical traits compared to 'Elderly men'. Alternatively, and in line with the non-prototypicality model, 'Elderly gay men', 'Elderly athlete men', and 'Elderly atheist men' were all atypical subtypes with respect to the prototype of 'Elderly men', and they would then be stereotyped less on elderly-stereotypical traits and more on counter-stereotypical features, namely young-stereotypical traits, compared to 'Elderly men'.

Method

Participants

We recorded twenty-eight clicks[2] on the link to the online survey which did not result in any part of the survey being completed. One-hundred and twenty-two people participated in the study. Of these, $N = 18$ participants skipped the ratings on either the young-stereotypical traits or the elderly-stereotypical traits of one or more groups. Furthermore, $N = 1$ rated less than 5 out of 10 traits of the young-stereotypical dimension and the elderly-stereotypical dimension of a given target group. This participant was not retained for further analyses. The final sample comprised $N = 103$ participants (see Table 1 for detailed demographic characteristics).

A sensitivity power analysis (ANOVA: repeated measure, within-between interaction), with $\alpha = .05$, $1\text{-}\beta = .80$, $N = 103$, indicated a minimal detectable effect (MDE) size Cohen's $f = .13$. Hence, the smallest effect size which we would be able to detect (at 80% power) with this sample size falls within the small-effect size area (Cohen, 1988).

Materials and Procedure

The experimental procedures were identical to those of Studies 1-3. As in previous studies, all participants were presented with the target groups 'Elderly men' (in Italian: *anziani*) and 'Elderly gay men' (in Italian: *anziani omosessuali*). Moreover, participants were further presented with another target group based on the combination of disconfirming category information and 'Elderly men'. Specifically, half of the participants were presented with 'Elderly athlete men' (in Italian: *anziani atleti*), the other half of participants were presented with 'Elderly atheist men' (in Italian: *anziani atei*). Participants were randomly assigned to the former or the latter disconfirming category information.

All target groups were presented in the masculine plural form, and the order of presentation was randomized across participants. Participants' age stereotyping of the target groups was assessed as in Studies 1-3. Also, participants' amount of intergroup contact with the 'Elderly gay men' and 'Elderly athlete/atheist men' target groups were measured as in Studies 1-3.

At the end of the questionnaire, participants reported their demographics (i.e., age, gender, sexual orientation, citizenship, native language). They were then debriefed and thanked.

Results

Participants' ratings on the ten young-stereotypical traits had good reliability with regard to the target groups ('Elderly men': $\omega = .76$; 'Elderly gay men': $\omega = .82$; 'Elderly athlete men': $\omega = .74$; 'Elderly atheist men': $\omega = .78$). Also, participants' ratings of elderly-stereotypical traits had good reliability across target groups ('Elderly men': $\omega = .73$; 'Elderly gay men': $\omega = .81$; 'Elderly athlete

men': ω = .77; 'Elderly atheist men': ω = .72). Both ratings of young and elderly stereotypes were averaged for all participants for all target groups.

Participants' ratings were analyzed by a 3 (target group information: no info vs. gay vs. inconsistent) x 2 (inconsistent condition: athlete vs. atheist) x 2 (traits: young-stereotypical traits vs. elderly-stereotypical traits) ANOVA, with both the target group information and traits as within-participants factors, and inconsistent condition as the between-participants factor. For the complete results of this study see supporting information.

A significant interaction between target group information and traits was found, ($F(2, 202) = 86.67$, $p < .001$, $\eta^2_p = .46$) as shown in Figure 4. Post-hoc comparisons were carried out and marginal means are reported. As nine post-hoc comparisons were performed the p level was set at < .006 (i.e., .05/9 = .0055, Bonferroni correction). The reported p values have not yet been adjusted. The analysis showed that, compared to 'Elderly men' ($M = 4.58$, $SE = .08$), participants attributed less elderly-stereotypical traits to 'Elderly gay men' ($M = 3.61$, $SE = .10$; $t(101) = 7.92$, $p < .001$). Also, and with respect to 'Elderly men', participants attributed less elderly-stereotypical traits to elderly men also described by inconsistent information ($M = 3.82$, $SE = .09$; $t(101) = 7.71$, $p < .001$). Moreover, participants equally attributed elderly-stereotypical traits to both 'Elderly gay men' and elderly men described by inconsistent information, $t(101) = 2.39$, $p = .019$.

Compared to 'Elderly men' ($M = 3.04$, $SE = .08$), participants attributed more young-stereotypical traits to 'Elderly gay men' ($M = 3.68$, $SE = .10$; $t(101) = 5.86$, $p < .001$). This pattern replicated the findings of Studies 2-3. Also, and with respect to 'Elderly men', participants attributed more young-stereotypical traits to elderly men also described by inconsistent information ($M = 3.76$, $SE = .09$; $t(101) = 7.99$, $p < .001$), while participants equally attributed young-stereotypical traits to both 'Elderly gay men' and elderly men described by inconsistent information, $t(101) = 0.94$, $p = .347$.

Finally, participants characterized 'Elderly men' more by elderly-stereotypical traits than young-stereotypical traits, $t(101) = 15.38$, $p < .001$. Participants equally attributed young- and elderly-

stereotypical traits to 'Elderly gay men', $t(101) = 0.65$, $p = .514$. Also, participants equally attributed elderly- and young-stereotypical traits to elderly men described by inconsistent information, $t(101) = 0.57$, $p = .569$.

The three-way interaction was significant, $F(2, 202) = 5.55$, $p = .005$, $\eta^2_p = .05$ (see Figure 5). Pairwise-comparisons were conducted by comparing participants' ratings in the two inconsistent conditions. As six post-hoc comparisons were performed the p level was set at .008 (i.e., .05/6 = .008, Bonferroni correction). As for the age stereotyping of 'Elderly men', no difference occurred between the inconsistent conditions on the elderly-stereotypical traits ($M = 4.53$, $SE = .11$; $M = 4.63$, $SE = .11$) for the 'Atheist' and the 'Athlete' conditions respectively, $t(101) = 0.62$, $p = .534$, and on the young-stereotypical traits ($M = 2.93$, $SE = .11$; $M = 3.15$, $SE = .11$) for the 'Atheist' and the 'Athlete' conditions respectively, $t(101) = 1.37$, $p = .174$. With regard to the age stereotyping of 'Elderly gay men', no difference occurred between the inconsistent conditions on the elderly-stereotypical traits ($M = 3.50$, $SE = .14$; $M = 3.72$, $SE = .14$) for the 'Atheist' and the 'Athlete' conditions respectively, $t(101) = 1.13$, $p = .262$, and on the young-stereotypical traits ($M = 3.58$, $SE = .14$; $M = 3.78$, $SE = .14$) for the 'Atheist' and the 'Athlete' conditions respectively, $t(101) = 1.05$, $p = .295$. Importantly, while the 'Elderly athlete men' ($M = 3.70$, $SE = .12$) and the 'Elderly atheist men' ($M = 3.95$, $SE = .12$) were equally stereotyped on elderly-stereotypical traits ($t(101) = 1.46$, $p = .147$), 'Elderly athlete men' were stereotyped more on young-stereotypical traits ($M = 4.00$, $SE = .12$) than 'Elderly atheist men' ($M = 3.53$, $SE = .12$; $t(101) = 2.76$, $p = .007$). Hence, the three-way interaction appears to be driven by the fact that 'Elderly athlete men' were more characterized as young than 'Elderly atheist men'.

To corroborate the above data interpretation, we performed two repeated measures ANOVA analyses separately for each inconsistent condition. We report the athlete condition analysis first and then the atheist condition analysis. In the athlete condition analysis, participants' ratings were analyzed by means of a 3 (target group information: no info vs. gay vs. athlete) x 2 (traits: young-stereotypical traits vs. elderly-stereotypical traits) ANOVA, with all variables as within-participants factors. The two-way interaction was significant, $F(2, 100) = 52.12$, $p < .001$, $\eta^2_p = .51$. Post-hoc comparisons were carried out and marginal means are reported. As 6 post-hoc comparisons were

performed the *p* level was set at .008 (i.e., .05/6, Bonferroni correction). The reported *p* values have not yet been adjusted. Compared to 'Elderly men' ($M = 4.53$, $SE = .12$), participants attributed less elderly-stereotypical traits to 'Elderly gay men' ($M = 3.50$, $SE = .15$; $t(50) = 5.73$, $p < .001$). Also, and with respect to 'Elderly men', participants attributed less elderly-stereotypical traits to 'Elderly athlete men' ($M = 3.70$, $SE = .13$; $t(50) = 5.48$, $p < .001$). Moreover, participants equally attributed elderly-stereotypical traits to 'Elderly gay men' and 'Elderly athlete men', $t(50) = 1.37$, $p = .176$.

Compared to 'Elderly men' ($M = 2.93$, $SE = .10$), participants attributed more young-stereotypical traits to 'Elderly gay men' ($M = 3.58$, $SE = .14$; $t(50) = 4.89$, $p < .001$). Also, and with respect to 'Elderly men', participants attributed more young-stereotypical traits to 'Elderly athlete men' ($M = 4.00$, $SE = .12$; $t(50) = 9.60$, $p < .001$). Moreover, they attributed less young-stereotypical traits to 'Elderly gay men' than to 'Elderly athlete men', $t(50) = 3.42$, $p = .001$.

In the atheist condition analysis, participants' ratings were analyzed by means of a 3 (target group information: no info vs. gay vs. atheist) x 2 (traits: young-stereotypical traits vs. elderly-stereotypical traits) ANOVA, with all variables as within-participants factors. The two-way interaction was significant, $F(2, 102) = 38.25$, $p < .001$, $\eta^2_p = .43$. Post-hoc comparisons were carried out and marginal means are reported. As nine post-hoc comparisons were performed the *p* level was set at .008 (i.e., .05/6, Bonferroni correction). The reported *p* values have not yet been adjusted. Compared to 'Elderly men' ($M = 4.63$, $SE = .10$), participants attributed less elderly-stereotypical traits to 'Elderly gay men' ($M = 3.72$, $SE = .12$; $t(51) = 5.47$, $p < .001$). Also, and with respect to 'Elderly men', participants attributed less elderly-stereotypical traits to 'Elderly atheist men' ($M = 3.95$, $SE = .11$; $t(51) = 5.46$, $p < .001$). Moreover, participants equally attributed elderly-stereotypical traits to 'Elderly gay men' and 'Elderly atheist men', $t(51) = 2.15$, $p = .036$.

Compared to 'Elderly men' ($M = 3.15$, $SE = .12$), participants attributed more young-stereotypical traits to 'Elderly gay men' ($M = 3.78$, $SE = .13$; $t(51) = 3.66$, $p < .001$). Also, and with respect to 'Elderly men', participants tended to attribute more young-stereotypical traits to 'Elderly atheist men' ($M = 3.53$, $SE = .12$; $t(51) = 2.67$, $p = .010$), although this result was not statistically

significant. Moreover, participants equally attributed young-stereotypical traits to 'Elderly gay men' and 'Elderly atheist men', $t(51) = 2.06$, $p = .045$.

Discussion

The results of Study 4 showed that 'Elderly gay men' were characterized more by young-stereotypical traits and less by elderly-stereotypical traits than 'Elderly men', thus replicating the findings of Studies 2-3. In a similar vein, elderly men who were described by inconsistent information were attributed less elderly-stereotypical traits and more young-stereotypical traits than 'Elderly men'. Importantly, no difference occurred in terms of age stereotyping between 'Elderly gay men' and elderly men described by inconsistent information. Hence, the target group information by traits interaction suggests that when coming across an atypical subtype, participants decreased the attribution of the elderly-stereotypical traits and enhanced the attribution of counter-stereotypical traits (i.e., young-stereotypical traits) as predicted by the non-prototypicality model.

However, the three-ways interactions suggest that when processing 'Elderly athlete men', the young-stereotypical implications of the 'Athlete men' category were incorporated in the age stereotyping of 'Elderly athlete men'. Indeed, this atypical subtype was stereotyped more on young-stereotypical traits than both the 'Elderly gay men' and the 'Elderly atheist men'. This pattern of results appears to be in line with the predictions of the stereotype-inconsistent model.

General discussion

Across four studies we analyzed the age stereotypes perceivers apply to men depending on the simultaneous combination of their age and sexual orientation. Together, the current results suggest that distinct cognitive underpinnings account for the age stereotyping of different age and sexual orientation category intersections.

Specifically, when category combinations comprised constituents that are not inconsistent with each other, such as in the case of 'Young gay men' (Studies 1-2) and 'Elderly heterosexual men' (Study 1), the age stereotyping of such category intersections follows the predictions derived by the

similarity model. In line with this model, we found that the age stereotyping of 'Young gay men' appears to be diluted with respect to the age discrete category: 'Young gay men' were perceived as less young but equally old as 'Young men' (Study 2). Also, diluted age stereotyping was found when 'Elderly men' was combined with an additional category which is not at odds with 'Elderly men' as well as ostensibly unrelated to age categories, that is 'Right-handed men' (Study 3). In fact, 'Elderly right-handed men' were perceived as less old but equally young as 'Elderly men'. In sum, in such category combinations (e.g., 'Young gay men', 'Elderly heterosexual men'), sexual orientation constitutes an additional piece of information that enhances the dissimilarity between these category combinations and the prototype of the age discrete categories (e.g., 'Young men', 'Elderly men'), thus weakening but not erasing their age stereotyping.

A different case is represented by the age stereotyping of category combinations whose constituents are inconsistent with each other, as in the case of 'Elderly gay men'. Across studies, we showed that compared to 'Elderly men', 'Elderly gay men' were characterized less on traits that are stereotypical of 'Elderly men' and more on traits that are counter-stereotypical of this discrete category, namely young-stereotypical traits (Studies 2-4). Hence it appears that the gay sexual orientation in association with the category 'Elderly men' blurs the age stereotyping of this conflicting intersectional category.

The age stereotyping of 'Elderly gay men' does not appear to be driven by the fact that this conflicting intersectional category works as a more specific subset of 'Elderly men', as predicted by the similarity model. In fact, when comparing the age stereotyping of two potential specific subsets, that is 'Elderly gay men' and 'Elderly heterosexual men', the former category was still perceived as younger and less old than the latter category (Study 1). Also, the category of 'Elderly gay men' was perceived as younger and less old than both 'Elderly right-handed men' and 'Elderly men' (Study 3), thus ruling out that the age stereotyping of 'Elderly gay men' was driven by its hypothetical status of a more specific subtype.

In sharp contrast, the fact that age stereotyping of 'Elderly gay men' appears to be blurred seems to be due to the atypical status of this subtype with respect to 'Elderly men' as a whole. Indeed, the findings of Study 4 indicate that 'Elderly gay men' were perceived as younger and less old than 'Elderly men', and this pattern of age stereotyping was replicated when 'Elderly men' was combined with an inconsistent category, namely 'Atheist men' and 'Athlete men'. This atypical status may result either from the fact that the category in combination with 'Elderly men' is inconsistent with this age category, as in the case of 'Atheist men', or from the fact that the category in combination with 'Elderly men' is not only inconsistent with this age category but further contradicts it, due to its association with young-related content, as in the case of 'Athlete men'. These results suggest that both the atypical status of a conflicting intersectional category as well as the stereotypical implications of the intersected categories played a crucial, and not an antagonist role in shaping the stereotyping of 'Elderly gay men'.

Moreover, we found that 'Elderly athlete men' were perceived as younger than 'Elderly atheist men' and 'Elderly gay men'. Such a result may indicate that the availability of young-stereotypical content in one of the combined categories amplified the pattern of age stereotyping of this subtype on the young-stereotypical traits. In other words, perceivers integrated the stereotypes implicated by the combined categories, in line with the stereotype-inconsistent model. An alternative interpretation of such a pattern of results is derived by the non-prototypicality model. Indeed, 'Elderly athlete men' could be considered a more extreme atypical and "deviant" case compared to 'Elderly gay men' and 'Elderly atheist men'. Research has long acknowledged that counter-stereotypical content was more intensively applied to extreme, compared to less peripheral atypical members (Bodenhausen et al., 1995; Sherman, 1996). If this were the case, the age stereotyping of 'Elderly athlete men' is particularly blurred compared to the other categories presented, which may be accounted for by its atypicality rather than the specific stereotypical content attached to this category cross-over. Unfortunately, when selecting the experimental material, we failed to assess the perceived atypicality of 'Athlete men' and 'Atheist men' with respect to 'Elderly men', and therefore rely on

categories that might display comparable levels of atypicality. Given this methodological flaw, we are unable to adjudicate between these two alternative accounts.

The current research had additional limitations. First, we compared the stereotyping of 'Elderly gay men' with that of the combination of 'Elderly men' with a category ostensibly unrelated to age (Study 3; 'Right-handed'). However, 'Right-handed men' represents a majority/normative group. Given that 'Gay men' is a minority/stigmatized category, we failed to compare the unique stereotyping of 'Elderly gay men' with that of 'Elderly men' in combination with another minority/stigmatized category. Minority/stigmatized categories in general are perceived as highly homogeneous and stereotyped in an extreme fashion (Cadinu et al., 2021; Mullen, 1991). Such a comparison would have allowed us to understand whether the atypical status and/or the minority/stigmatized status of the combined categories could have played a crucial role in blurring the age stereotyping of 'Elderly gay men'.

Second, in general the experimental samples mainly comprised young (ca. 64.01%) and adult participants (ca. 33.32%). The percentage of elderly participants was very limited in Studies 1 (9.89%) and 3 (0.79%), while both Studies 2 and 4 did not comprise elderly participants in their samples. Prior research suggested that compared to young and young-adult individuals, adult and elderly individuals have a more multifaceted representation of their age group (e.g., Brewer & Lui 1984; Hummert, 1993). Future research can rely on an age diverse sample to test whether age stereotyping of the intersected categories under scrutiny differs across age classes.

Third, the current research focused on category intersections involving male individuals only, thus perpetuating androcentrism in social psychology research (Lee & Crawford, 2007). Our findings might be equivalent for 'Elderly lesbian women', as 'Lesbian women' might also be appraised as an atypical case of 'Elderly women', or may be different due to the overlap (and not the inconsistency) between the stereotypes of 'Elderly women' and 'Lesbian women', as both categories are stereotyped as unattractive and lonely (e.g., Berger 1982; Kite et al., 1991; Schope, 2005). Also, the current study relied on sexual orientation categories only as binary concepts, thus leaving out additional sexual

orientation categories (e.g., bisexual men and women, pansexual individuals). Future research could further analyze the age stereotyping of more fluid and nonbinary sexual orientation categories.

Moreover, in three out of four studies we found that the attribution of young- and elderly-stereotypical traits to 'Elderly gay men' did not differ from each other. This recurring pattern of results could be due at least to two different processes that the current studies are unable to unravel, which is a limit of this research. First, conflicting intersectional categories, like the combination of inconsistent categories, possess unique stereotypical features that cannot be reduced to the stereotypes of the constituent categories (Carnaghi et al., 2021; Kunda et al. 1990; Preddie & Biernat, 2020). In such a case, perceivers apply neither young- nor elderly-stereotypical traits to the atypical case of 'Elderly gay men', because such an atypical subtype is characterized by specific features. Second, stereotypical features belonging to the constituent categories might coexist to a similar extent in the stereotypes of the conflicting intersectional categories. This claim is coherent with evidence suggesting that rather than be homogeneous, stereotypes associated with age and race groups, for instance, are non-uniform and display ambivalent content (Cuddy et al., 2005; Katz & Hass, 1986). If this were the case, stereotypes of conflicting intersectional categories might constitute a case of mixed, ambivalent stereotypical features. Accordingly, perceivers may apply the young- and the elderly-stereotypical traits to 'Elderly gay men' to a similar degree.

This research contributes to the literature on the stereotypes about gay men in general, and 'Elderly gay men' in particular in an under-investigated area, that is Italy. Despite this research being among the first carried out in Italy on this topic, caution is advised when generalizing these findings to other contexts and to different populations, given that stereotypes are highly dependent on cultural milieu (Fiske & Cuddy, 2006; Gordijn et al., 2001). Also, and as indicated in the method sections, we relied on masculine grammatical gender to specify that the categories under consideration referred to men. Although this grammatical marker conveys information concerning the (masculine) gender of the categories under consideration, future studies carried out in gender-unfair linguistic contexts might more explicitly specify gender information.

The current research has practical implications. The consensual age stereotypes of old gay men can enact the invisibility of that group when, for instance, planning policies aimed at older individuals. In fact, the unique needs of old gay men have frequently been left unaddressed as in the case with retirement communities that have only recently become LGBT+ inclusive (Cronin & King, 2010). In addition, socially representing this age segment of the gay male population as "young" may reinforce the belief on the part of older gay men that looking and acting young is necessary to be accepted in the gay community (Grant, 2010; Schope, 2005; Wight et al. 2015). The current results could inform media professionals about the risk of portraying elderly men as exclusively heterosexual, making old gay men "invisible", and of the need to adopt more sexual orientation-diverse representations of elderly men.

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Footnotes

Footnote 1. We *a priori* did not exclude sexual minority participants, in line with the prior research on a similar issue (e.g., Petsko and Bodenhausen, 2019; Carnaghi et al. 2021). Analyses carried out on experimental samples that excluded such participants are reported in the supporting information.

Footnote 2. People who accessed the survey and agreed to participate but did not provide any rating on the dependent variables and who might have reported demographic characteristics only.

Table 1 *Age, gender, sexual orientation, citizenship, native language of participants as a function of the Study (Studies 1- 4)*

	STUDY 1	STUDY 2	STUDY 3	STUDY 4
Age				
Range	18 – 72	19 – 60	18 – 65	18 – 56
M	40.56	28.17	39.41	27.71
SE	1.89	0.78	1.41	0.69
Not reporting	1			
Gender				
Female	65	90	74	62
Male	22	28	50	40
Other			1	
Not reporting	5	1	1	1
Sexual orientation				
Heterosexual	81	99	109	96
Bisexual	5	10	9	2
Homosexual	1	7	2	2
Other		2	5	2
Not reporting	5	1	1	1
Citizenship				
Italian	89	115	122	102
Other than Italian	1	1	1	
Dual	1	2		1
Not reporting	1	1	3	
Native language				
Italian	87	114	121	101
Other than Italian	3	2		1
Dual	1	2	2	1
Not reporting	1	1	3	

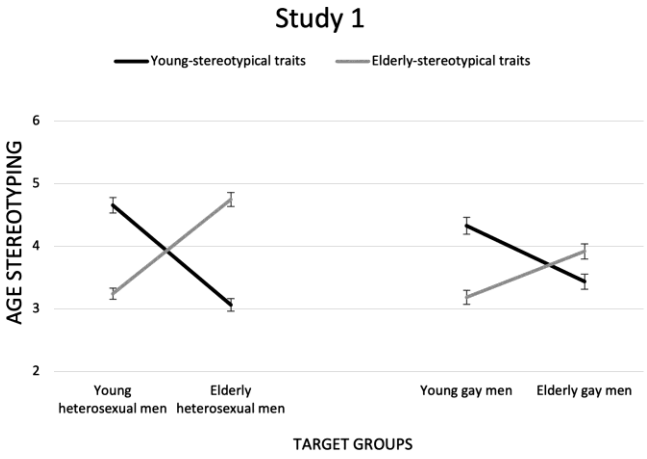
Note. Values pertaining to the participant age are expressed in years.

Table 2 *List of young- and elderly-stereotypical traits used in Studies 1-4*

Elderly-stereotypical traits	Young-stereotypical traits
Balanced (Equilibrato)	Energetic (Energico)
Wise (Saggio)	Adventurous (Avventuroso)
Patient (Paziente)	Carefree (Spensierato)
Cautious (Prudente)	Curious (Curioso)
Practical (Concreto)	Flexible (Flessibile)
Forgetful (Smemorato)	Reckless (Imprudente)
Tired (Affaticato)	Rebellious (Ribelle)
Shabby (Trascurato)	Disrespectful (Irrispettoso)
Inflexible (Inflessibile)	Irresponsible (Impulsivo)
Lonely (Solitario)	Impatient (Impaziente)

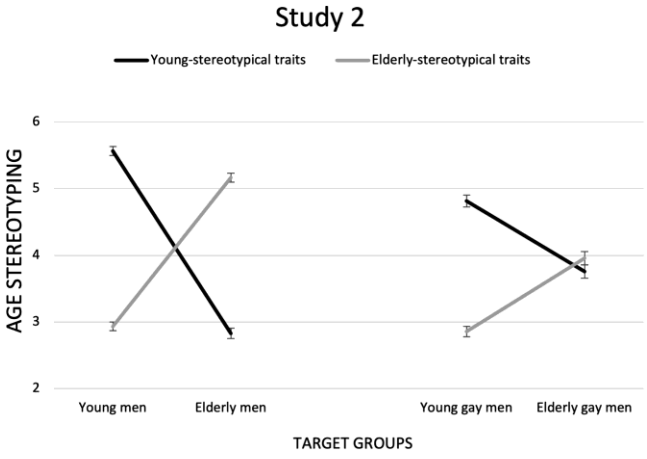
Note. The Italian translation of each trait is provided between brackets.

Figure 1 *Participants' ratings on young- and elderly-stereotypical traits as a function of the target group age, target group sexual orientation and traits in Study 1*



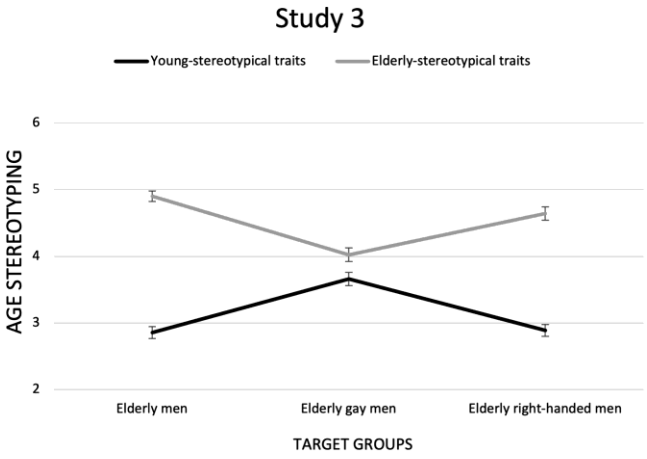
Note. Error bars represent standard errors of the means.

Figure 2 *Participants' ratings on young- and elderly-stereotypical traits as a function of the target group age, target group sexual orientation and traits in Study 2*



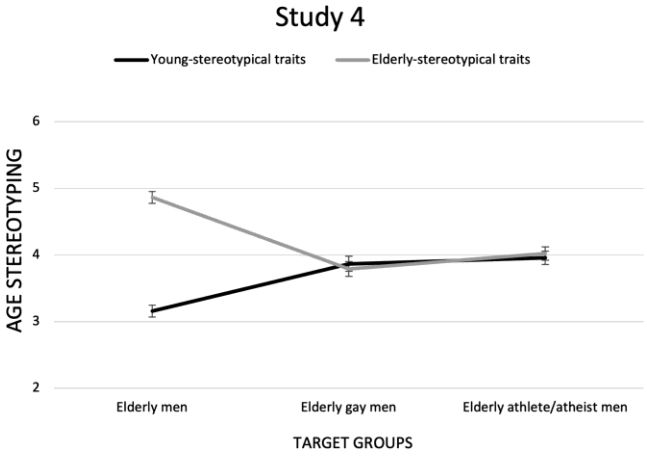
Note. Error bars represent standard errors of the means.

Figure 3 *Participants' ratings on young- and elderly-stereotypical traits as a function of the target group information and traits in Study 3*



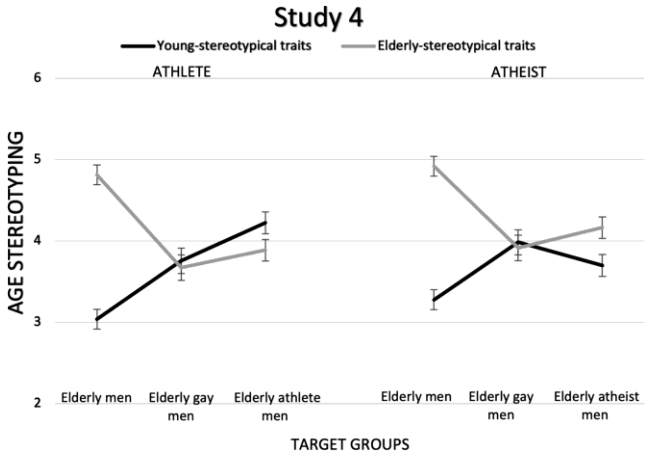
Note. Error bars represent standard errors of the means.

Figure 4 *Participants' ratings on young- and elderly-stereotypical traits as a function of the target group information and traits in Study 4*



Note. Error bars represent standard errors of the means.

Figure 5 *Participants' ratings on young- and elderly-stereotypical traits as a function of the target group information, traits, and inconsistent information in Study 4*



Note. Error bars represent standard errors of the means.