Curr Psychol
DOI 10.1007/s12144-014-9230-9

One too many categories: an experimental test on the effectiveness of a dual-identity recategorization intervention on age-based bias

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Abstract A laboratory experiment was conducted on a convenient sample of N=724 introductory Psychology students from the southeastern United States, to test the effectiveness of a dual identity recategorization intervention when applied on age bias toward a hypothetical older adult, when applied on individuals both low and high on the spectrum of ageism, and when applied on members of the naturally occurring in-group, younger adults. As predicted by Optimal Distinctiveness Theory, the intervention served to worsen evaluations of an in-group target vis-à-vis a control group that was not exposed to the intervention, and especially when applied on individuals possessing lower amounts of the in-group bias in question, ageism. Moreover, although age-based stereotyping and in-group bias against an older applicant was demonstrated, the intervention was found to have no effect in changing evaluations of an older target relative to the control group. Results and implications for future research are discussed.

Keywords Ageism · Older workers · Prejudice reduction intervention · Reducing ageism

Prejudice begins with the process of categorization, which in turn leads to stereotyping; consequently, interventions that have sought to reduce prejudice either seek to block stereotype formation or seek to alter the categorization process (Gaertner and Dovidio 2000). The latter are referred to as "recategorization" based interventions, and have traditionally sought to replace a sub-category (e.g., age) with a new and overarching, "superordinate", category (e.g., nationality; Gaertner and Dovidio 2000). Because superordinate-category based interventions have been criticized as artificial and weak in the face of deep-seated prejudices such as those resulting from surface variables (Dovidio, Gaertner, and Saguy Dovidio, Gaertner and Saguy 2007), "dual-identity"

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Published online: 25 May 2014

recategorization interventions have been proposed as an alternative, whereby the original social category is embraced, but simultaneously paired with a new and more inclusive category (Dovidio, Gaertner and Saguy 2007, 2009). Dual-identity interventions have been evidenced to work in instances using minimal groups (Gonzalez and Brown 2003, 2006) groups divided by national identity (Crisp, Stone and Hall 2006), and with groups divided by ethnicity (Saguy, Tausch, Dovidio and Pratto 2009).

Although dual-identity recategorization interventions have been tested with more than minimal group designs, they have not been tested on individuals identified as most likely to hold group-based prejudices. Additionally, the intervention has yet to be tested on age-based prejudice, which entails discriminatory behaviors and attitudes on the basis of age membership. The aim of this paper, then, is to test the dual-identity recategorization intervention with regard to age-based prejudice, and on individuals who are less or more ageist.

Dual-Identity Interventions

From a theoretical perspective, recategorization-based interventions propose to alter the category formation itself, by changing the categorization of a former out-group member into an in-group member, based upon the newly formed and commonly held in-group (e.g., viewing a Black American not as Black, but as American; Gaertner, Dovidio, Anastasio, Bachman and Rust 1993; Gaertner and Dovidio 2000. These interventions have been found to possess positive behavioral, affective, and cognitive consequences (Gaertner and Dovidio 2000) and have worked in laboratory settings with artificially created groups (e.g., Gaertner, Mann, Murrell and Dovidio 1989) in field settings with naturally formed groups (e.g., Lipponen, Helkama, and Juslin 2003and across cultures (e.g., Gonzalez et al. 2008).

Dual identity representation both creates the overarching category and recognizes that subgroup differences do exist. Both types of recategorization work by breaking down group boundaries to include former out-group members into more inclusive in-groups that subsume them, but with the major difference being that dual-identity based recategorization interventions emphasize subgroup as well as common ingroup identities, and superordinate identity based recategorization interventions only emphasize the common group identity (Dovidio et al. 2007, 2009). As with superordinate interventions, dual-identity recategorization is aimed at attenuating the category-stereotype link, by building the notion of separate subgroups that are also united by a larger identity (e.g., Black and White Americans; children and parents in a family; Gaertner and Dovidio 2000). Thus, it is argued that dual-identities serve to build the optimal distinctiveness between group boundaries (Brewer 1991; 1997), whereby individuals do not react against being included in an overly broad category because they are still able to retain their original identities (Gaertner and Dovidio 2000). It is argued that this type of recategorization makes generalization to other outgroup members beyond the target easier, as the target is less likely to be seen as an "exception" (Gaertner and Dovidio 2000).

Research using dual-identity interventions has largely been cross-sectional in nature, with a mix of both lab and field studies. Dual identity interventions have been found to produce greater reductions in out-group bias than either superordinate-identity recategorization or decategorization interventions when group members attempt to

differentiate themselves from an overly inclusive category (Dovidio et al. 2007; 2009) and when group differences are salient (Gonzalez and Brown 2003; 2006). Research has also found that dual-identity interventions work to reduce prejudice even when more salient group differences, such as national identity, are employed (e.g., "British" vs. "European"; Crisp, Stone and Hall 2006; "Arab" vs. "Jew", Saguy, Tausch, Dovidio and Pratto 2009) with small to medium standardized mean differences (c.f., Crisp et al. 2006; Dovidio et al. 2007; 2009; Gonzalez and Brown 2003, 2006; Saguy et al. 2009).

However, prior studies have not examined group differences with high-prejudice individuals. For example, in the Saguy et al. (2009) study, ethnic identification was measured as a characteristic of participants, but the extent to which participants were prejudiced against the respective ethnicities was not measured. This is an important issue to examine because highly prejudiced individuals have been found to be more likely to endorse stereotype congruent traits of target out-groups (Devine 1989). The intervention has also not been tested with regards to age-based prejudice – another potentially important issue, because age is one of the three most salient points of categorization, alongside sex and race, and remains understudied in comparison to the other major "isms" (North and Fiske 2012).

What is Age Bias? Does it Exist?

The term "ageism" was coined by Butler (1969, p. 243) and defined as "a deep-seated uneasiness on the part of the young and middle-aged–a personal revulsion to and distaste for disease, disability, and old age, and fear of powerlessness, uselessness, and death". Although initially defined as only regarding biases against older individuals, the term is now understood to apply to individuals across the spectrum of age, both old and young; nevertheless, biases against younger adults remain severely understudied (Finkelstein, Ryan and King 2012; North and Fiske 2012). Ageism is defined to include attitudes, cognitions, and behaviors that are biased on the basis of age membership (Bal, Reiss, Rudolph and Baltes 2011). Ageism is similar to other forms of prejudice in that the phenomenon begins as a function of the categorization process, but is different from the other "isms" such as racism and sexism in that not all individuals are Black or female, but all individuals eventually grow old (Butler 1980). By "old", we refer to individuals advanced in chronological age. The Age Discrimination in Employment Act (ADEA, 1967) defines an "older worker" as one who is at least 40 years of age. From a broader psychological perspective, in a narrative review of 105 separate studies, Ashbaugh and Fay (1987) found that an "older worker" was defined to be, on average, as someone who is 53.4 years of age, with the minimum being 30 years of age, the maximum being 65 years of age, and the vast majority of studies (80 %) conceptualizing "older worker" as one who is over 50 years of age. More recent evidence confirms this finding–an updated analysis and review by Finkelstein et al. (2012) confirmed that the threshold for "old" was found to be approximately 51 years of age. On the other end of the spectrum, findings suggest "younger" to fall between 18 and 30 years of age (Finkelstein et al. 2012.) Hence, in keeping with the literature, the specific chronological age used to denote "older adult or worker" here will be one who is at least in his/her 40s (based on legal definitions), and optimally in his/her early 50s; "younger adult or worker" is here defined to be one who is in his/her mid-to-late twenties.

In the most recent meta-analysis of the literature on age bias in the workplace, Bal et al. (2011) reported the overall effect size of age to be small, between d=.26 and d=.43, depending on the type of outcome investigated, with effect sizes for selection evaluations being much smaller than for other evaluative criteria, including evaluations of interpersonal skill, advancement, and general evaluations. It was also found that rater age, amount of information presented, study design, and setting were all found to moderate this relation, such that greater bias was found in lab studies, by younger raters, when less information was presented, and in within-subject designs (Bal et al. 2011; Gordon and Arvey 2004.) This overall effect size is on par with that which has been found for in-group bias in general, ρ=.35 (Mullen, Brown and Smith 1992). It should be noted, however, that although college age participants in Rosen and Jerdee's (1976a, 1976b) seminal studies rated older adults as being less desirable and qualified for work than younger adults, a contemporary study by Weiss and Maurer (2004) found that both younger and older workers were rated as equally desirable and qualified for work. Thus, it is unclear if age bias is as prevalent among contemporary youth as with the youth of yesteryear, given potential differences in generational attitudes toward older workers (Finkelstein et al. 2012).

Stereotypes of Older Adults

Negative stereotypes of older adults and workers show a pattern associated with death and decay. This pattern is consistent with Terror Management Theory (TMT). TMT postulates that a desire for survival in the knowledge of inevitable death creates a situation whereby individuals cling to cultural systems of belief to achieve psychological calm; to the extent that out-groups share different cultural worldviews, there exists the propensity for prejudice and discrimination (Greenberg, Schimel and Martens 2004; Hart, Shaver and Goldenberg 2005). TMT has special application where older adults are concerned because older adults bring to mind our own mortality, thereby causing the threat of death and the fear of our own mortality to become salient; these fears lead to prejudice and discrimination against older adults (Greenberg et al. 2004; Martens, Goldenberg and Greenberg 2005). In line with themes of decay and deterioration, a number of literature reviews on age stereotyping show that older workers are stereotyped as being less adaptable, creative, competent, flexible, ambitious, productive, competent, physically strong, interested in technological change, trainable, energetic, and active (e.g., Gordon and Arvey 2004; Kite et al. 2005; McCann and Giles 2002/2004; Posthuma and Campion 2009). The most commonly identified of these negative stereotypes are incompetence and resistance to change, or inadaptability.

From a social role perspective, stereotypes are formed partly as a product of societal culture and partly as a product of our individual experiences with members of stereotyped groups (Schneider 2004). In general, older adults hold positions of responsibility (e.g., head of household; senior manager) and positions that promote nurturance (e.g., grandparent). Thus, positive schemas of older adults are grouped into three general categories, which incorporate traits associated with nurturance and responsibility: 'Perfect Grandparent' (e.g., family-oriented, wise), 'Liberal Matriarch/Patriarch' (e.g., distinguished, wealthy), and 'John Wayne Conservative' (e.g., tough, mellow; Hummert 1990). Although perceivably incompetent, then, older adults are simultaneously viewed to be "dear", or warm and friendly (Cuddy and Fiske 20022004). Meta-

analytic reviews of the literature on age-based stereotypes buttress these notions, with older adults and workers being stereotyped as friendly, warm, and dependable (Gordon and Arvey 2004; Posthuma and Campion 2009).

Summarily, although there do exist positive stereotypes of older adults and workers, the negative stereotypes outnumber the positive ones. Therefore, we argue that age bias will be evidenced among young adult raters. Because stereotypes represent the mediating mechanism between group membership and prejudice (c.f., Glick et al. 1988; King et al. 2006; Parks and Roberton 2004), it is expected that this bias will be manifested in terms of both stereotypes and prejudice.

Hypothesis 1 Older adults rated by younger raters will experience more negative and less positive outcomes relative to younger adults.

To the extent that prior research on dual-identity interventions have not investigated age-based prejudice (e.g., Crisp et al. 2006; Saguy et al. 2009), findings regarding the intervention's efficacy in reducing ageism can help inform theory on the boundary conditions whereby this type of intervention may or may not work. Recategorization theory posits that prejudice toward negatively-viewed out groups should decrease after the former outgroup member is recategorized as an ingroup member, because the ingroup favoritism effect would not then disadvantage the former outgroup (now ingroup) member (Gaertner and Dovidio Gaertner and Dovidio 2000). Although this rationale readily applies to prejudices driven by hostile stereotypes (e.g., race, sex, ethnicity), could it also apply to prejudices driven by patronizing but benevolent stereotypes?

We expect the answer to this question to be in the affirmative. That is, in the absence of recategorization, it is expected that the older adult will be viewed as "incompetent but friendly", and therefore in need of greater assistance. However, when simultaneously categorized as both older and as a member of a common in-group, the ingroup identity is expected to take precedence, with the consequence that the now competently viewed ingroup member will be viewed as capable and in need of less assistance.

Hypothesis 2 Older adults rated by younger raters will experience less negative and more positive outcomes when a dual-identity intervention is present.

Dual-identity Recategorization & Individual Differences in Prejudice

Although both high- and low-prejudiced individuals have been found to agree upon the content of common stereotypes, and produce stereotype congruent responses (Devine 1989), high-prejudice individuals endorse such stereotypes to a greater extent (Kawakami, Dion and Dovidio 1998). High-prejudice individuals are more negative in their evaluations of out-group members than are low-prejudice individuals, and are especially likely to endorse negative traits as opposed to negative beliefs or positive traits/beliefs of out-group members (Devine 1989).

Thus, individuals high on ageism should have a greater amount of prejudice to reduce in the first place. To the extent that this implies a greater range of the dependent variable in question (prejudice) where individuals high on that trait are concerned, an intervention seeking to reduce said prejudice ought to be more effective on highly prejudiced individuals. With low-prejudice individuals, however, the intervention is

expected to be not as effective because such individuals are expected to not possess much variability on the trait in question.

Hypothesis 3 Older adults rated by younger raters will experience least negative and most positive outcomes when a dual-identity recategorization intervention is applied on raters with higher levels of pre-existing prejudice against older adults.

Dual-Identity Interventions & the Natural In-Group: What About Younger Adults?

The majority of research on ageism has focused on age-based prejudice against older targets (Finkelstein et al. 2012). However, as with other types of prejudice, the dominant group may sometimes also experience prejudice. For example, it has been found that older adults and workers are more positively rated relative to their younger peers in terms of reliability, warmth, and dependability (Bal et al. 2011; Cuddy and Fiske 2002; Finkelstein and Farrell 2007). Negative stereotypes of younger workers by middle-aged and older individuals include the traits of tardiness, unreliability, laziness, immaturity, irresponsibility, arrogance, naiveté, selfishness, and undependability (Finkelstein et al. 2012). Overall, however, evaluations remain, on average, more negatively valenced against older adults and workers (Bal et al. 2011; Gordon and Arvey 2004; Finkelstein et al. 1995; Kite et al. 2005). Hence, age-based prejudice may be construed to be a special case within the larger family of group-based prejudices such that the dominant group, younger adults, may in fact experience prejudice, given the configuration of variables investigated at hand.

Prejudice against younger adults by younger raters may perhaps be explicated via Optimal Distinctiveness Theory (ODT; Brewer 1991; 2007). According to ODT, human beings possess a need for differentiation in relation to others in order to maintain their unique identity as individuals, but also possess a countervailing need for assimilation with similar others in order to become part of a larger collective, and receive cooperation and support necessary for survival. If the collective becomes too large and inclusive, the individual will become motivated to differentiate himself as an individual to reestablish his unique identity; to the extent that the individual becomes overly distinct she/he is motivated to identify with similar others in order to escape isolation. Hence, there is a drive toward achieving "optimal distinctiveness", whereby the individual is not isolated but also manages to maintain a sense of self as an individual. The capacity for social identification with groups satisfies both needs simultaneously, whereby the need for differentiation is met by comparisons with in-group members, and the need for assimilation is met by comparisons with out-group members. A review of the literature indicates that activation of these needs increases the importance of distinctive group memberships and motivates over exclusion and intergroup differentiation, such that distinctive minority group categories engage in greater identification and stereotyping than larger and more inclusive categories (Brewer 1991; 2007).

As applied to age-based prejudice, the just-noted literature evinces that although overall evaluations favor younger vs. older adults, younger adults do in fact experience some negative stereotyping within the realm of work (i.e., tardiness, unreliability, laziness, immaturity, irresponsibility, arrogance, naiveté, selfishness, undependability; Finkelstein et al. 2012). Given optimal distinctiveness, and because over-inclusion

leads to over-identification, it may perhaps be posited that the natural in-group in question, younger adults, may in fact be negatively perceived if said in-group members over-identify with their naturally occurring in-groups. That is, if potential (younger adult) raters find younger adult targets to be over-identified with the in-group, a push toward distinctiveness could result in said younger targets becoming categorized as less like younger raters themselves. As theorized by ODT (Brewer 1991; 2007), to the extent this differentiation against younger adult targets happens, it may be posited that they will experience more negative stereotyping and prejudice in the presence of a dual-identity recategorization intervention.

Hypothesis 4 Younger adults rated by younger raters will experience more negative and less positive outcomes when a dual-identity intervention is present.

Effects of the Magnitude of Prejudice on Evaluations of the In-Group

As discussed before, it is expected that a dual-identity recategorization intervention will be most effective in reducing age-based stereotypes and prejudice against older adults when applied on more ageist individuals, because the theoretical range of the ageism construct is expected to be higher with the said group. When this logic is turned on its head and applied toward younger adults, however, the opposite is expected to be true. That is, individuals lower on the spectrum of ageism in regards to older adults may logically be expected to less often frame cognitive and behavioral actions with age as a *sine qua non* frame-of-reference; given additional pressure in doing so, we may expect such individuals to in fact shy away from the use of age as a frame-of-reference at all. Hence, it may be plausible that, because a dual-identity representation primes both the target (age) and the new demographic category, and given the drive toward optimal distinctiveness, individuals less predisposed to use age as a cognitive basis for evaluation in the first place may likely react by assigning unexpectedly more negative evaluations against the dominant group (younger adults) when faced with a dual-identity recategorization intervention. In other words, it is possible that, given a dual-identity intervention that makes the category of age especially salient, individuals who hold less ageist views react by evaluating the dominant- and in-group (younger) less favorably than in the presence of such an intervention, because they may be expected to find the target younger adult to be least like themselves.

Hypothesis 5 Younger adults rated by younger raters will experience the most negative and least positive outcomes when a dual-identity recategorization intervention is applied on raters with lower levels of pre-existing age-based prejudice.

Method

Participants

A sample of N=724 students from a large, southeastern university, enrolled in introductory psychology courses and voluntarily participating for course credit, were

sampled for this study. Sixty-four percent of participants were female. Participant race breakdown is as follows: 57.4 % White, 10.8 % Black, 19.9 % Hispanic; 7.2 % Asian/Pacific Islander; 4.8 % "Other". Median participant age was 18 (M=18.73; SD=1.64). Seventy-eight percent of participants worked, 14 % had previous hiring experience, and 44 % had hiring experience in non-work organizations (e.g., college fraternity/sorority; sports team).

Procedure

Participants were informed that they were playing a role in helping to evaluate the quality of video resumes as a potential organizational tool. They were told that the results of this research would be directly used to inform practice on the potential viability of using video resumes as opposed to face-to-face interviews. Additionally, to further stimulate participant involvement and thereby increase experimental realism, participants were led to believe that they would be giving in-person feedback to the job applicant whose resume they were going to view, after answering some survey-based questions.

To prevent personality and attractiveness based confounds, the same actor played the role of Jack Smith in all video clips. To prevent race and sex confounds, the actor was a White male. Make-up was applied to the actor to make him look like a man in his mid twenties, or early fifties, respectively (age ranges were chosen as according to the reviewed literature described in the introductory section). Adobe Elements Premiere was used to edit the video clip footage. Additionally, this software was used to age the voice of the actor in the old conditions, by lowering the pitch of his voice. Experimental video clips are provided as follows: http://www.youtube.com/watch?v=Zb_1kP08mbM (younger adult, control condition); http://www.youtube.com/watch?v=9HwaQWL7r_I&feature=youtu.be (younger adult, intervention condition); http://www.youtube.com/watch?v=uNuY5Pq4mjc&fature=youtu.be (older adult, control condition); http://www.youtube.com/watch?v=qkPAIJ9hUCA (older adult, intervention condition).

Pilot testing was conducted on an independent sample of N=157 participants from the same population. The pilot sample was demographically similar to the main study sample (64 % female, 53.3 % White, median age of 19 [M=20; SD=2.56]). Pilot participants were asked to rate how old they perceived the job applicant to be on 3 questions: An 8-point, ordinal scale (1=Mid twenties; 2=Late twenties; 3=Mid Thirties; 4=Late Thirties; 5=Mid Forties; 6=Late Forties; 7=Mid Fifties; 8=Late fifties); A forced choice 2-item question (1=Younger Adult; 2=Older Adult); A 6-point interval scale (1=Very Young; 6=Very Old). Results indicated that the age manipulation worked as intended. The applicant was rated as being significantly younger in the young (M=1.81; SD=.77) as opposed to the old (M=4.76; SD=1.23) conditions ($t_{(180)}=-18.794$, $p<.001$) on the 8-point scale. The younger applicant was rated as being significantly younger than the older adult on the 2-point scale ($X^2_{(1)}=130.308$, $p<.001$; 92 % of targets correctly rated the younger adult as younger; 94 % of participants correctly rated the older adult as older). Finally, the younger applicant was rated as being significantly younger on the 6-point scale (($t_{(180)}=-13.142$, $p<.001$; For Young Adult: M=2.75; SD=.64; For Old Adult: M=3.93; SD=.57). Thus, the older applicant was perceived as being significantly "older" in relation to the younger applicant. A caveat, however, is that across both the interval and ordinal measures,

mean age perception ratings indicated the older adult to be placed somewhere in his early- to mid-forties, and not in his early fifties, as intended. Although this is well within the range of operationalize used to define older adult (Ashbaugh and Fay 1987), and is within the legally accepted definition of "older worker", as defined by the ADEA (1967), it is not optimal. We discuss this limitation and its implications for our research in the relevant sections.

To check that all 4 of the video clips were equivalent in terms of both resume quality and the behavioral cues of the actor, pilot participants were asked to rate the videos on a number of items. Behavioral cues included 8 questions related to body and head movement, eye contact, speed of speech, tone of speech, steadiness of speech, facial expressions, and overall video resume quality; a Multivariate Analysis of Variance (MANOVA) indicated differences on behavioral cues between video resumes on these measures to not be significant ($F_{(24, 444)}=1.418$; $p>.05$). Examination of the univariate effects indicated that the applicant was found to be smiling more in videos with the younger adult ($F_{(3, 156)}=4.586$; $p<.001$; C control: $M=4.24$; $SD=1.122$; Treatment: $M=4.17$; $SD=1.056$) than in videos with the older adult (Control: $M=3.50$; $SD=1.436$; Treatment: $M=3.46$; $SD=1.238$). No other behavioral cues were found to be significantly different across conditions. Video resume quality cues included 8 questions related to viability of the video-resume as opposed to a regular paper-and-pencil resume, professionalism of presentation, video quality, sophistication of videos, whether or not the organization would benefit from the use of the video resumes, clarity of videos, quality of information conveyed, and overall video resume quality. A Multivariate Analysis of Variance (MANOVA) indicated differences on quality between video resumes on these measures to not be significant ($F_{(24, 444)}=1.319$; $p>.10$). Examination of the univariate effects indicated videos with the older applicant in the intervention condition to be less professionally presented ($F_{(3, 156)}=3.221$; $p<.05$; $M=2.73$; $SD=1.170$) than in all other conditions (Younger adult control: $M=3.57$; $SD=1.129$; Younger adult treatment: $M=3.14$; $SD=1.199$; Older adult control: $M=3.12$; $SD=1.310$). No other resume quality cues were found to be significantly different across conditions[1]. Overall, given non-significant multivariate differences on either behavioral or resume quality cues across 16 separate measures on 2 independent multivariate tests, we proceeded with the experiment as planned.

Design and Dual-Identity Manipulation

A 2 (job applicant age; young vs. old) × 2 (treatment; absence vs. presence of a dual-identity recategorization intervention) design was used, with level of prejudice added as a third and continuous independent variable. All IVs were between-subjects; participants were randomly assigned to one of four study conditions (young applicant,

[1] As an anonymous reviewer pointed out, audio quality for the older adult conditions seems to be artificial, and even mechanical, when the linked videos are viewed on YouTube. Yet no significant differences were found for any of the measures regarding speech patterns or video clarity/quality. These somewhat surprising results could potentially be explained by the fact that experimental participants listened to the videos while they sat individually in laboratory cubicles, using high quality headphones, and with the audio level turned relatively down, in order to minimize the static that occurs in the older adult conditions. Such measures likely made the speech in older adult conditions seem far less mechanical than if they were listened to without high-quality headphones, and/or at relatively higher levels of speaker audio.

control; young applicant, intervention; old applicant, control; old applicant, intervention). Following random assignment, participants watched the video clip, and then answered survey questions electronically, via Surveymonkey.com, an electronic and web-based data collection tool. Survey questions were counterbalanced to help prevent order effects. Participants were then debriefed and thanked for their time.

In all 4 conditions, the job applicant (actor) was applying for the job of mechanical engineer. He provided the same details regarding his education, previous job experience, a description of the job duties that he performed in his last job, his Knowledge, Skills, and Abilities (KSAs), and his university education[2]. In the control conditions, the university was a generic university. In the intervention conditions, the university was the one where participants were recruited from. Consonant with the dual-identity aspect of this intervention, the fact that he was old (young) was emphasized as well, once at the beginning of the video clip, and once at the end. Thus, in the dual-identity manipulation condition, the older adult both emphasized his age, thereby retaining the out-group member status with younger raters, but also emphasized his university affiliation, and enabling him to become a member of the in-group (an alumni).

Measures

Helping intentions We asked for the amount of time the participant would be willing to spend giving in-person feedback to the job applicant, after completing the study ("Helping Intentions"). Participants' responses averaged 2.33 min (SD=1.29 min). It is reasoned that because individuals are more likely to offer help to members of their perceived in-group as opposed to perceived out-group members, more time extended to help indicates higher levels of in-group bias.

Ingratiation Five items from Schriesheim and Hinkin (1990) were adapted to read in terms of the job applicant, and used to measure ingratiation (α=.73). Example items are "The job applicant was trying to look good because he wants something out of me" and "The job applicant was trying to flatter me". Higher scores on the scale indicate higher degrees of perceived ingratiation on the part of the job applicant. It is reasoned that because individuals attribute more negative behavioral tendencies toward the actions of out-group members, the perception that the job applicant in question is "trying too hard", or attempting to ingratiate himself to the reviewer is a measure of bias against the out-group.

Age-based stereotypes As indicated in the previously-discussed literature review of age-based stereotypes, the most prevalent negative stereotypes toward older adults and workers have been found to be incompetence and inadaptability (Posthuma and Campion 2009), and the most prevalent positive stereotype toward older adults has been found to be warmth (Cuddy and Fiske 2002/2004). We measured these stereotypes using a previously developed instrument measuring Work-related, Age-based Stereotypes (WAS), developed by Marcus, Fritzsche and Le (2011) Six items measured incompetence (α=.89), six items measured inadaptability (α=.90), and six items measured warmth (α=.87). Confirmatory Factor Analyses (CFA) indicated these three

[2] Details regarding KSAs, job duties, and all aspects related to the job were derived from O*Net.

proposed stereotype dimensions to provide a good fit to the data ($\chi^2_{(132)}$=741.17; Bentler's CFI>.90; Bentler-Bonnett NFI>.90; SRMR<.05; RMSEA=.08), thereby indicating that the WAS in fact measured the just-noted stereotypes as distinct constructs.

Ageism The 14-item Beliefs in Abilities of Older Workers scale, adapted from Maurer, Barbeite, Weiss and Lippstreu (2008) "Ability Beliefs"; α = .92) was used to measure individual differences in ageism.

Covariates A four-item measure of in-group identification was used to covary the degree to which participants identified with being a student at the university where the study was conducted. Items for the in-group identification measure were adapted from Hornsey and Hogg (1999); "In-group Identification"; α = .82). We also covaried participant age because the extant literature indicates that individuals of different ages may differ in ageist attitudes and behaviors toward older adults (Gordon and Arvey 2004). We deemed this a necessary precaution because even though most participants ranged in age from 18–24, a small number (n=16) of participants in the final sample were in their mid-twenties to early-thirties.

Results

Correlation coefficients between all study variables, reliabilities, and overall means and standard deviations for each variable are displayed in Table 1. As shown in Table 1, neither helping intentions nor ingratiation were correlated with each other or with most of the stereotype measures. Because of these low correlations, we ran separate sets of univariate hypothesis tests for helping intentions and ingratiation; a multivariate test was run for the three highly correlated stereotype measures. SPSS GLM was used to conduct null hypothesis significance tests, using an analysis of covariance model with both categorical and continuous predictors. Age and intervention served as categorical independent variables, individual differences in ageism served as a continuous independent variable, and ingroup identification with the university and participant age

Table 1 Means, Standard Deviations, and Intercorrelations between Study Variables

Variable	M	SD	Ingratiation	Helping Intentions	Competence	Adaptability	Warmth	Ageism	Ingroup Identification
Ingratiation	3.15	0.93	(.73)						
Helping Intentions	2.33	1.30	-.03	–					
Competence	4.25	0.91	−.01	.04	(.89)				
Adaptability	4.24	0.88	−.05	.05	.84*	(.90)			
Warmth	4.46	0.77	−.08*	.03	.56*	.57*	(.87)		
Ageism	3.64	0.48	.21*	−.07	−.08*	−.09*	−.12*	(.92)	
Ingroup Identification	4.16	1.02	.06	−.06	.12*	.17*	.20*	−.01	(.82)

p values≤.05 are indicated with an *

served as covariates. Specifically, 10 individuals who incorrectly identified the race of the job applicant as Hispanic, and 1 individual who incorrectly identified the sex of the participant as female were disqualified from analyses; in total, the number of respondents failing the manipulation check was negligible, representing approximately 1 % of available data. Next, observations that qualified as multivariate outliers on one or more of the six dependent measures were discarded from the respective analyses. Briefly, multivariate outliers (c.f., Fidell and Tabachnick 2003) are outliers that occur in multidimensional space, on the joint distribution of a combination of independent variables with a particular dependent variable, and have far greater effects on statistical significance than mere univariate outliers on any particular dependent variable. Because multivariate outliers are unique to the particular combinations of independent and dependent variables, it is necessary to detect and eliminate these separately for separate dependent measures. That is, a multivariate outlier on one particular dependent variable will not necessarily be a multivariate outlier on a different dependent variable. Coupled with the elimination of the 11 afore-mentioned individuals who failed the manipulation check, elimination of uniquely occurring multivariate outliers resulted in final sample sizes between N=709 (stereotypes) and N=712 (ingratiation).

Alpha Level Considerations

Joint moderator effects, or three-way interactions, are particularly plagued by problems of low statistical power; yet, the power of such tests has not been well understood (Zedeck, Cranny, Vale and Smith 1971; Liakhovitski, Stone-Romero and Jaccard 2008). Liakhovitski et al. (2008) systematically studied the ability of Moderated Multiple Regression (MMR) to detect joint moderator effects via statistical simulations. With a sample size of N=100 (α=.05), assuming high reliability (.85), a moderate effect size (.30), and exactly proportionate moderator subgroups, statistical power for the 3-way interaction was found to be only .09 (9 %); this estimate increased to .15 (15 %) for N=200, and .20 (20 %) for N=300 (Liakhovitski et al. 2008, Table 8). Thus, tripling sample size from 100 to 300 increased power by only 10 %. Extrapolating from these results, given an estimated effect size of age bias of δ=.30 (Kite et al. 2005), with N>700 and criterion reliabilities exceeding .80, power for tests of 3-way interactions may be roughly 50 % assuming every 100 extra participants adds 5 % extra power. In line with suggested best practices in such situations (Liakhovitski et al. 2008), we set α=.10 for tests of 3-way interactions.

Depiction of Effects

Although all hypothesis testing was carried out using the full sample of individuals, in order to clearly depict the results, we included only individuals scoring 1 *SD* above (high-prejudice) and below (low-prejudice) the mean of ageism for graphs of the interactions. This was a necessary step because of the continuous nature of individual differences in the ageism predictor. We provide Cohen's d values for the relevant mean differences, in order that the reader may judge the size of the effects for each of these contrasts directly; corresponding tests of simple effects were conducted with these constricted sample sizes at hand (i.e., low/high individuals on the spectrum of age-based prejudice).

Hypotheses Tests for Helping Intentions

The main effect of job applicant age was statistically significant (($F_{(1, 703)}$=5.02; p<.05; η^2=.008). As expected, individuals were willing to spend more time helping the younger (in-group) job applicant (M=2.41; SD=1.35) than the older (out-group) job applicant (M=2.20; SD=1.07). The two-way interaction between job applicant age and intervention condition was not significant (($F_{(1, 703)}$=.12; p>.05). The three-way interaction between job applicant age, individual differences in ageism, and intervention condition was statistically significant (($F_{(1, 699)}$=3.28; p<.05; η^2=.006). The interaction is depicted in Figs. 1**a** (younger job applicant) and **b** (older job applicant).

As shown in Fig. 1**a**, for younger job applicants, less prejudiced individuals were more willing to help in the control condition (M=3.07; SD=1.71) than in the intervention condition (M=2.20; SD=1.15; d=.63; $t_{(69)}$=2.56; p<.05); more prejudiced individuals were equally as willing to help in the control condition (M=2.15; SD=.86) and in the intervention condition (M=2.26; SD=1.45; d=.09; $t_{(48)}$=−.33; *n. s.*). As shown in Fig. 1**b**, for older job applicants, less prejudiced individuals were equally willing to help in both the control (M=2.48; SD=1.26) and the intervention conditions (M=2.53; SD=1.81; d=.03; $t_{(48)}$=−.11; *n. s.*). More prejudiced individuals were also about as likely to help the older job applicant in both the control (M=2.36; SD=1.52) and the intervention conditions (M=2.31; SD=1.37; d=.03; $t_{(48)}$=.14; *n. s.*).

Hypotheses Tests for Ingratiation

All IVs and covariates remained the same as with helping intentions. The main effect of job applicant age was not statistically significant (($F_{(1, 701)}$=2.26; p>.05; η^2=.003). The interaction between job applicant age and intervention condition was not statistically significant (($F_{(1, 701)}$=3.14; p>.05; η^2=.004). The three-way interaction between job applicant age, individual differences in ageism, and intervention condition was statistically significant (($F_{(1, 701)}$=3.15; p<.10; η^2=.004). The interaction is depicted in Figs. 2**a** (younger job applicant) and **b** (older job applicant).

As shown in Fig. 2**a**, for younger job applicants, less ageist individuals perceived the job applicant to be equally ingratiating in both control (M=3.25; SD=1.13) and intervention conditions (M=2.84; SD=1.17; d=.35; $t_{(72)}$=1.48; *n. s.*); conversely, more ageist individuals perceived the job applicant to be less ingratiating in the control (M=3.07; SD=.67) than in the intervention condition (M=3.72; SD=.91; d=.78; $t_{(47)}$=−2.88; p<.05). As shown in Fig. 2b, for older job applicants, less ageist individuals perceived the job applicant as equally ingratiating in both control (M=2.68; SD=1.05) and intervention conditions (M=2.68; SD=1.03; d=0; $t_{(49)}$=0; *n. s.*). Similarly, more prejudiced individuals also perceived the job applicant to be equally ingratiating in both control (M=3.51; SD=.84) and intervention conditions (M=3.53; SD=.94; d=.02; $t_{(60)}$=−.08; *n. s.*).

Hypotheses Tests for Stereotypes

Dependent variables included perceptions of adaptability, competence, and warmth. All IVs and covariates remained the same as with previous tests of statistical significance. The multivariate main effect of job applicant age was statistically significant (($F_{(3, 694)}$=3.25; p<.05; η^2=.014). Examination of the univariate effects indicated a

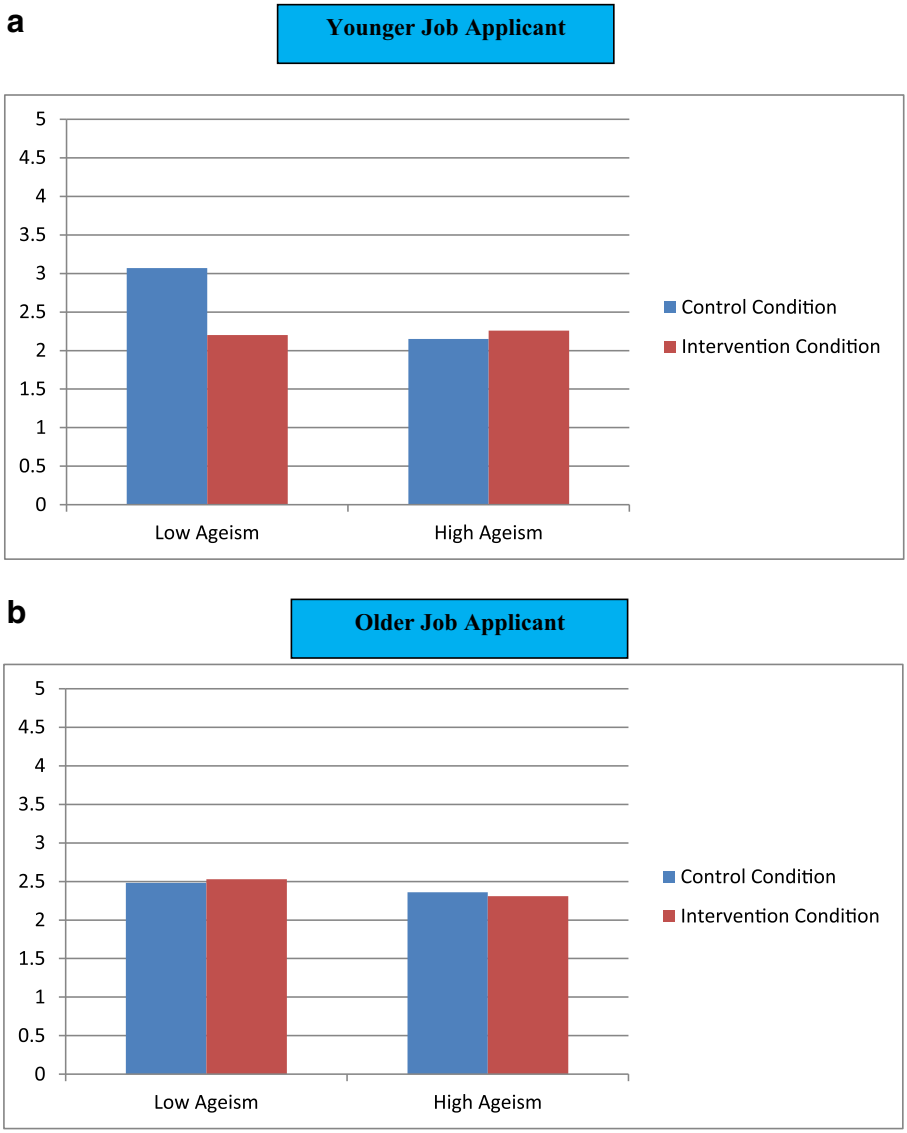

Fig. 1 **a** Interaction between job applicant age and individual differences in ageism on helping intentions, younger job applicant. **b** Interaction between job applicant age and individual differences in ageism on helping intentions, older job applicant. **Because participants scores averaged 2.33 min (SD= 1.29 min), scores are displayed from 0 to 5 min*

significant difference on adaptability ratings (($F_{(1,\ 696)}$=8.36; p<.01; η^2=.012). As expected, individuals rated the younger job applicant as more adaptable (M=4.42; SD=.87) than the older job applicant (M=4.32; SD=1.01). The two-way multivariate interaction between job applicant age and intervention condition was not significant (($F_{(3,\ 694)}$=2.304; p>.05; η^2=.010).

The three-way multivariate interaction between job applicant age, ageism, and intervention condition was significant (($F_{(3,\ 694)}$=2.43; p<.10; η^2=.010).

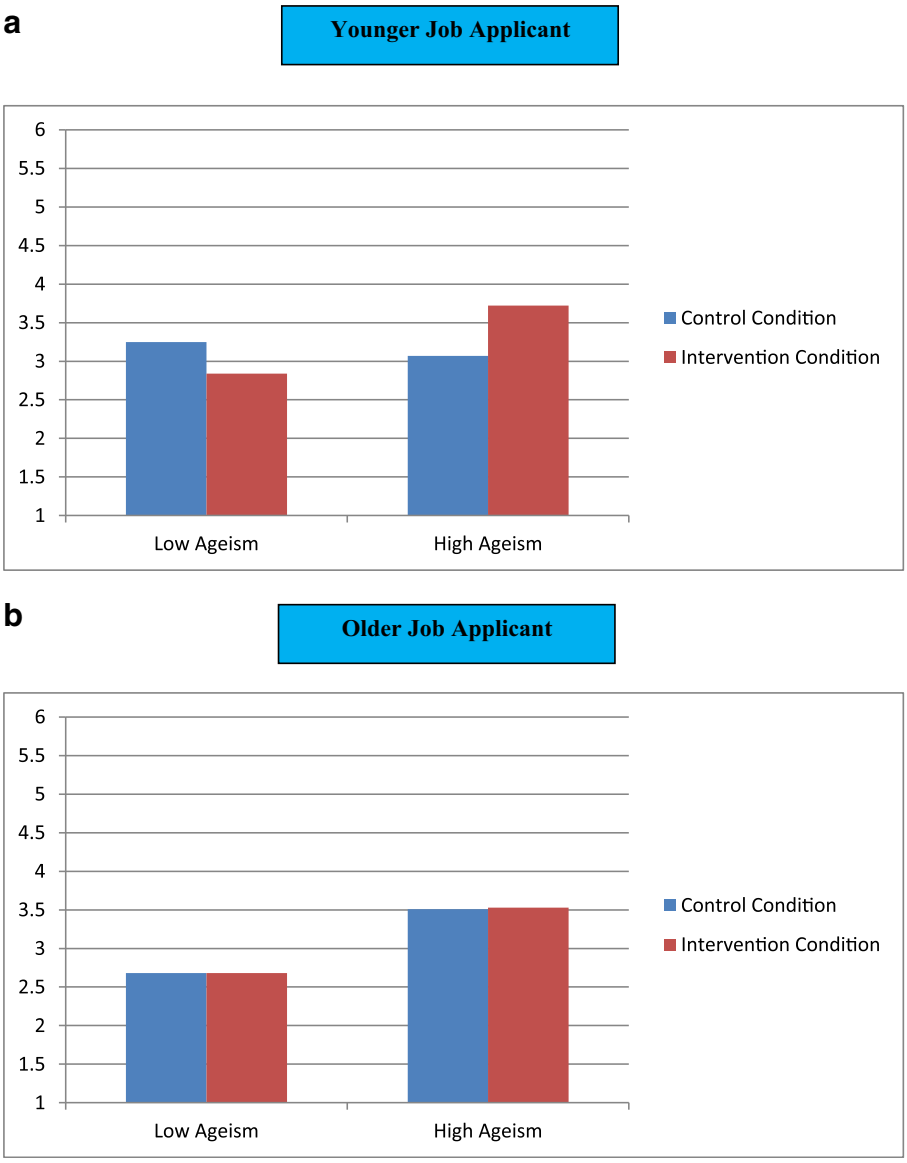

Fig. 2 **a** Interaction between job applicant age and individual differences in ageism on perceptions of ingratiation, younger job applicant. **b** Interaction between job applicant age and individual differences in ageism on perceptions of ingratiation, older job applicant

Examination of the univariate effects indicated a significant three-way interactive effect for competence stereotypes (($F_{(1, 696)}$=2.88; p<.10; η^2=.004). The means are depicted in Figs. 3a ((younger job applicant) and **b** (older job applicant). As shown in Fig. 3a, for younger job applicants, less ageist individuals perceived the job applicant as marginally more competent in the control (M=4.69; SD=.82) than in the intervention condition (M=4.26; SD=1.11; d=.43; $t_{(69)}$=1.74; p<.10); conversely, more ageist individuals perceived the younger job applicant as equally competent in both the

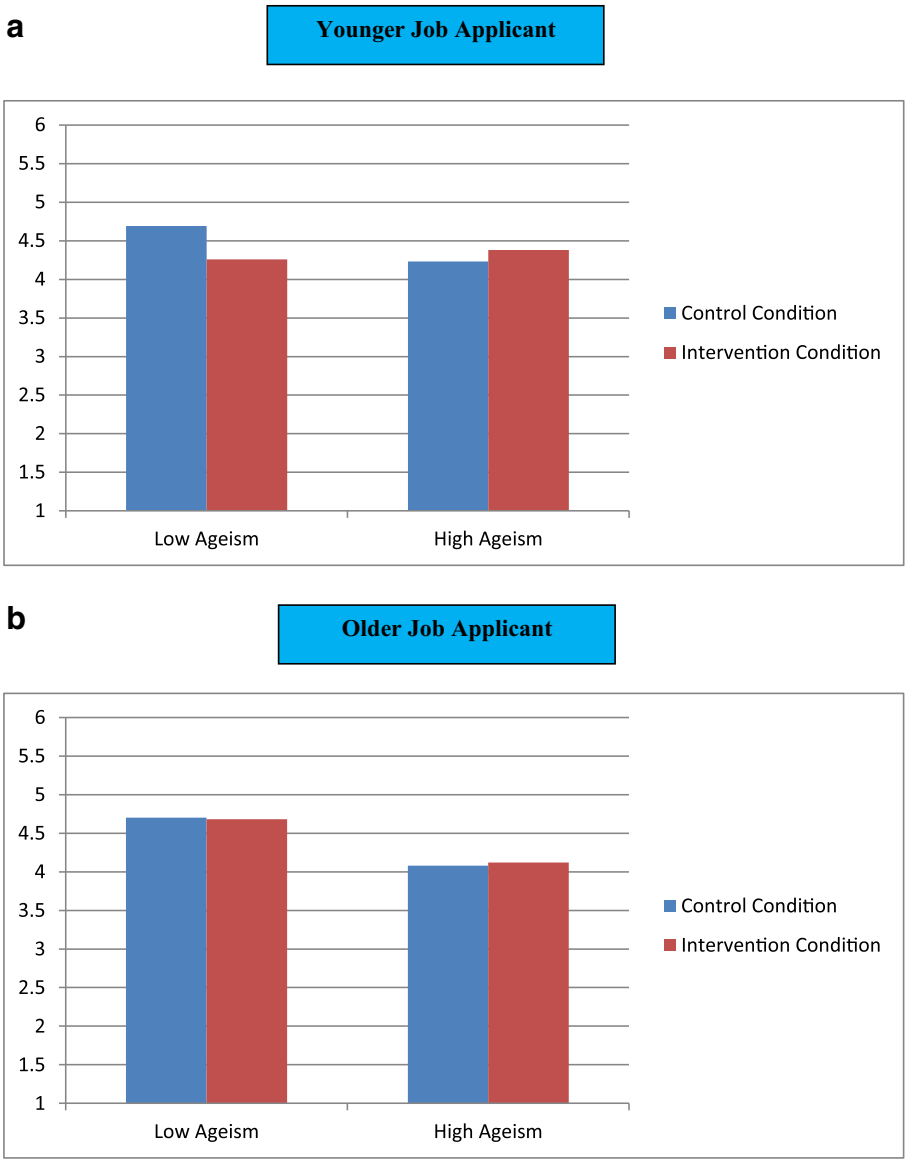

Fig. 3 **a** Interaction between job applicant age and individual differences in ageism on competence stereotypes, younger job applicant. **b** Interaction between job applicant age and individual differences on competence stereotypes, older job applicant

control (M=4.23; SD=.74) and intervention conditions (M=4.38; SD=.85; d=.18; $t_{(48)}$=−.66; *n. s.*). As shown in Fig. 3b, for older job applicants, less ageist individuals perceived the older job applicant as equally competent in both the control (M=4.70; SD=1.04) and the intervention conditions (M=4.68; SD=1.17; d=.02; $t_{(48)}$=.06; *n. s.*); more prejudiced individuals also perceived the older job applicant as equally competent in both the control (M=4.08; SD=.79;) and intervention conditions (M=4.12; SD=.96; d=.05; $t_{(60)}$=−.18; *n. s.*).

Interpretation of Hypotheses Tests

As expected, the younger job applicant was extended more help and viewed as more adaptable than the older job applicant. These results provide support for Hypothesis 1, and tentatively indicate that, contrary to the findings of Weiss and Maurer (2004), negative stereotyping and unfair discrimination are alive and well in the current generation of younger adult raters.

The 3-way interaction between job applicant age, intervention, and individual differences in prejudice was statistically significant across all three sets of hypotheses tests. Planned comparisons of the corresponding simple effects for younger, and older adults, respectively, indicated no significant mean differences across all three independent measures for comparisons involving older adults; results also indicated that when an intervention was applied on younger raters, the younger adult was perceived as less competent, more ingratiatory, and needing more help, and particularly so by raters who were the least ageist. This pattern of results indicates no support for Hypotheses 2 and 3, but is consistent with Hypotheses 4 and 5.

As postulated by Hypotheses 4 and 5, younger raters, and especially those who are least ageist, are expected to react against the intervention when it is applied on younger targets by identifying less with the newly-created in-group. Conversely, if differentiation processes kick in and raters strive to see themselves as different from targets, they are also less likely to view the dual-identity younger targets as less like themselves. We explore these possibilities by analyzing subgroup differences in ingroup identification, and also by examining subgroup differences in perceived age of target (measured on the previously-described eight-point scale, with 1="mid-twenties" and 8="late fifties"[3]). If raters in the young adult conditions, and especially those who are least ageist, identify with the in-group less, and rate the younger target as less young in the intervention as compared to the control condition, it may be construed that they are attempting to differentiate themselves from the in-group (younger) target, as would be expected under ODT.

When rating younger adult targets, raters low on ageism were not significantly less likely to identify with the in-group in the intervention condition (M=4.04; SD=1.28) than in the control condition (M=4.07; SD=1.03; $t_{(188)}$=.178; d=.03); raters high on ageism were not less likely to identify with the in-group in the intervention condition (M=4.28; SD=0.90) than in the control condition (M=4.28; SD=0.89; $t_{(167)}$=0; d=0). When rating older adult targets, raters low on ageism were not significantly more likely to identify with the in-group in the intervention condition (M=4.07; SD=1.11) than in the control condition (M=4.02; SD=1.17; $t_{(161)}$=.280; d=.04); raters high on ageism were more likely to identify with the in-group in the intervention condition (M=4.33; SD=0.85) than in the control condition (M=4.19; SD=0.83; $t_{(188)}$=1.149; d=.17).

When rating younger adult targets, raters low on ageism viewed the target as less young in the intervention (M=1.99; SD=0.97) as compared to the control condition (M=2.05; SD=1.01; $t_{(188)}$=.418; d=.06); raters high on ageism were not less likely to view the target as less young in the intervention condition (M=2.06; SD=0.82) as

[3] Although we used three separate measures to examine perceived age, in order to provide the most statistically valid conclusions regarding subgroup differences, we chose the measure with the highest variance in ratings, the 8-point scale.

compared to the control condition (M=2.06; SD=0.76; $t_{(167)}$=0; d=0). When rating older adult targets, raters low on ageism viewed the target as less old in the intervention (M=4.58; SD=1.32) as compared to the control condition (M=4.76; SD=1.39; $t_{(161)}$=.847; d=.14); raters high on ageism viewed the target as older in the intervention condition (M=5.15; SD=1.43) as compared to the control condition (M=5.01; SD=1.24; $t_{(186)}$=.717; d=.11).

Thus, for younger targets, there were differences in effect sizes, such that, for both measures, the intervention had zero effect when applied to individuals high on ageism, and had a small but non-significant effect when applied to individuals low on ageism. Across all four subgroups comparing ratings of younger adults, individuals low on ageism and receiving the intervention were least likely to identify with the in-group, and rated the younger target as least young. The directionality of these means and effect size differences corresponds to that as postulated by ODT theory, though effects remain small. Coupled with the pattern of significant effects across all three outcome measures, the overall picture is in support of Hypotheses 4 and 5. However, because the subgroup differences in tests of simple effects remain small, and in some cases, non-significant, we qualify our conclusions with a call for further research into this phenomena, and ideally in a situation that compares targets that are much more differentiated on age than in the current study (e.g., early twenties vs. early sixties, as opposed to the late twenties-mid forties comparison in the current study).

Discussion

The primary aim of the current study was to further examination regarding the efficacy of dual-identity recategorization interventions on group bias, by a) Exploring the intervention's ability to reduce a previously-untested type of prejudice, ageism, b) Exploring the intervention's effects on the evaluations of the naturally occurring in-group on the spectrum of age, younger adults, and c) Exploring the intervention's effects across individuals both low and high on the spectrum of ageism. Further, the study also aimed at examining the prevalence of bias against older adults on a contemporary sample of younger evaluators. We examined the just-noted issues using a variety of independent measures, including behavioral (helping intentions), affective (perceptions of ingratiation), and cognitive (age-based stereotypes) measures of bias, as recommended to be best practice by the extant literature on ageism (Bal et al. 2011).

Contrary to recent findings by Weiss and Maurer (2004), we found that age bias was present in a sample of young adults, such that raters were more willing to help, and rated the younger job applicant as more adaptable than the older job applicant. These findings tentatively indicate that age bias is still present among contemporary raters. Coupled with burgeoning numbers of the aged in 21st century America (Hedge, Borman and Lammlein 2006), these findings regarding the presence of age bias help buttress the case to find a counter against age-based prejudice. Toward that end, we examined the efficacy of a dual-identity intervention on reducing age bias.

As summarized earlier, results indicated mixed support for study hypotheses examining the efficacy of a dual-identity intervention in target evaluations. When applied to the naturally occurring in-group member, a younger adult, given the drive toward achieving optimal distinctiveness (Brewer 1999, 2007), we theorized that "over-

inclusiveness" given a target being both young and a university alumnus/a may result in participants providing worse evaluations of the younger target vis-à-vis a situation where there was only one in-group category, and particularly so for individuals less likely to be ageist in the first place. Furthermore, because age bias can sometimes occur against the natural in-group, younger adults (Finkelstein et al. 2012), the examination of ageism makes for a particularly compelling case in the study of dual-identity interventions on reduction of group bias. That is, the equivalent in-groups for race (White) and sex (male) do not suffer from potential racism or sexism. Results were in the theorized directions, indicating that a younger target, as compared to instances where the target was a member of only one in-group (age) but not two (age and alumni status), the target was rated as relatively less competent, needing more help, and behaving in a more ingratiating manner when a dual-identity intervention was used. In line with Optimal Distinctiveness Theory (ODT), younger raters low on ageism found a younger target in the intervention condition to be significantly less like them (i.e., younger) than a corresponding younger target in the control condition; in line with ODT also, younger raters low on ageism identified least with their in-group in intervention conditions applied on younger targets. These findings potentially cast an important qualification on the potential utility of a dual-identity intervention when applied to group biases where both the natural in-group and the out-group may potentially be targets of prejudice.

However, when applied on the out-group target, an older adult, the intervention was found to have no effect. Consistent with the literature on ageism, the current study found the older adult to be viewed as less adaptable than a younger target; consistent with the literature on in-group bias, the older target was offered less help than the younger target. However, despite these demonstrations of age-typing and group-biased behaviors occurring, the intervention had no effect on increasing or decreasing evaluations of the older target on any of the measured dependent variables, and regardless of individuals' pre-existing levels of ageism. One potential explanation here is that the age of the target may not have been high enough in order to trigger the "doddering" perception – this possibility is buttressed by the fact that across all 3 measures on perceived age, the older target, although perceived to be significantly older than the younger target, was consistently perceived to be in his early- to mid-forties, as opposed to an optimal 50+ (c.f., Ashbaugh and Fay 1987; Finkelstein et al. 2012). Relatedly, it could also be possible that the examined job, mechanical engineer, did not prime age as strongly as other types of jobs that are more likely to be stereotyped as "young", such as computer scientist or disc jockey (Cleveland and Hollmann 1990). However, given that the current study represents a first attempt to examine dual-identity interventions when applied to age bias, we opted again to preserve generalizability of study conclusions, by utilizing an age-neutral job. Future research could examine these issues pertaining to age-type and the spectrum of age.

The current findings are potentially important because 1) Prior studies examining dual-identity recategorization interventions (e.g., Crisp et al. 2006; Gonzalez and Brown 2003, 2006; Saguy et al. 2009) did not examine ageism, 2) Prior studies did not examine dual-identity recategorization interventions in the instances of individuals holding high levels of the prejudice in question, and 3) Prior studies have not examined the effects of a dual-identity intervention on the naturally occurring in-group, when the in-group in question can sometimes also be the target of prejudice. Overall, our findings indicate that over-identification as a result of dual-identity recategorization could

potentially backfire on an in-group target, insofar as age is concerned; our results also tentatively indicate that dual-identity interventions may perhaps not be as efficacious when applied to age bias, and may perhaps call into question the generalizability of dual-identity interventions across the spectrum of in-group biases.

Limitations

One potential limitation of this study is that it was conducted in an artificial setting little resembling the context that actual hiring decision makers experience when selecting job applicants. However, we argue that the applied generalizability issue is a moot point here, because our focus is to examine the theoretical boundaries of dual-identity based recategorization interventions, and not to create generalizable recommendations regarding hiring decisions in actual job selection contexts. Furthermore, as noted in a recent review of the prejudice reduction intervention literature, lab-based experimental studies are currently needed to causally examine the underlying theoretical mechanisms of proposed extant interventions (Paluck and Green 2009).

Another limitation of our study is that the older target was perceived to be in his early- to mid-forties. Although this age range fits the legal definition of "older worker" as defined by the ADEA (1967), it is not a psychologically optimal age range with which to compare differences between younger and older workers. Resultantly, it is possible that restricted variance on the range of perceived age masked potentially significant differences between intervention and control conditions as applied on the older target. This limitation was associated with using makeup to age a person, as it was difficult to add more than 20 years to a person with makeup alone. The benefit to using makeup was that we are confident that all other characteristics, beyond age, were held constant across conditions. Future research might use different 20-year-old and 50-year-old actors who are matched on as many other characteristics as is possible. Then, it would be possible to investigate dual-identity recategorization interventions in the treatment of age bias when applied on contrasts of targets that are much more differentiated by age.

Finally, because our particular research questions regarding both in-group and out-group effects of dual-identity recategorization interventions with regard to age called for the use of a younger sample of adults, the present data only tell us about ageism among emerging adults. Future research should investigate this phenomenon with a more age-representative sample of working adults.

Acknowledgements This study was partly supported by a small grant from the Learning Institute for Elders at the University of Central Florida (LIFE at UCF).

We would like to acknowledge the work of our many undergraduate research assistants, without whom this study would not have been a success, including Christina Davila, Daniel Streem, Courtney Mosier, Jessica Mastin, Natasha White, Paul Leotaud, Taylor Hoffman, and Thomas Pellito. This study, and the studies leading up to it, could not have been successfully completed without your efforts.

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