Will you still hire me when I am over 50? The effects of implicit and explicit age stereotyping on resume evaluations

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Abstract

Multiple studies have found that older workers may be disadvantaged in their job search due to explicit age stereotypes. However, no published research has examined the effect of both explicit (conscious) and implicit (unconscious) negative age stereotypes against older workers on hiring decisions. The current study fills this gap by using an experimental design to simultaneously examine how both explicit and implicit age stereotypes affect the evaluation of resumes for older and younger job applicants. Participants completed measures of explicit age stereotypes via a questionnaire and implicit age stereotypes with an Implicit Association Test focused on older and younger working-age people. They then completed a resume screening task that included younger and older potential applicants. Results showed that participants' explicit age stereotypes positively influenced the evaluation of younger applicants' resumes but had no significant effect on the evaluation of older applicants' resumes. Conversely, implicit age stereotypes had a negative effect on the evaluation of older applicants' resumes but had no significant effect on the evaluation of younger applicants' resumes. The results suggest that both implicit and explicit age stereotypes may harm older job applicants' hireablity, but through different pathways.

Keywords: ageism, hiring discrimination, age stereotypes, implicit attitudes, resume screening.

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The global workforce is becoming increasingly age-diverse (Bell, 2012). Many retirement systems encourage older workers to remain in or re-enter the workforce. However, older workers are less frequently selected for job interviews (e.g., Blaine, 2012) and promotions (e.g., Bal, Reiss, Rudolph, & Baltes, 2011), and they also experience longer re-employment times after layoffs (Wanberg, Kanfer, Hamann, & Zhang, 2016). This suggests that, compared with their younger colleagues, older job applicants might be at risk of experiencing lower hireability (Abrams, Swift, & Drury, 2016; Derous & Decoster, 2017). [In the current paper, we use the term hireability to refer to the evaluations done by an individual/recruiter regarding the suitability or the fitness of a potential candidate (e.g., older or younger applicant) for a specific job (e.g., bank teller position). This term has been used in other research with similar content and operationalization (Abrams, Swift, & Drury, 2016; Derous & Decoster, 2017).] This is concerning given that equal treatment regarding age is guaranted by the law in both the United States and in Europe (e.g., *Age Discrimination in Employment Act*/1967/U.S.; *Employment Equality Framework Directive 2000*/78/EC). Further, from an organizational perspective, unbiased selection of job candidates is crucial for building a diverse, competitive, and committed workforce (Böhm, Kunze, & Bruch, 2014; Kunze, Boehm, & Bruch, 2011). The final goal of a selection process is to choose people who have the right qualifications to fill a specific job, so basing decisions on any personal characteristics not related to the requirements for the position (e.g., age) can compromise the chances of hiring the most qualified person for the job (Abrams et al., 2016). Hiring decisions might be affected by age stereotypes, because such decisions are often based on a mix of objective assessments (e.g., fulfilment of formal requirements) and

subjective evaluations (e.g., general evaluations and performance predictions) (Sackett & Lievens, 2008). Moreover, the need for research on age stereotypes in the hiring process, such as resume screening, has been pointed out by previous research (Abrams et al., 2016; Derous & Decoster, 2017). Given both the significant legal and organizational outcomes at stake, more research is needed regarding the antecedents of age discrimination in the hiring process such as in resume screening.

Despite its central importance, the underlying mechanisms of workplace age discrimination are under-studied, including the potential relationship between age stereotypes and workplace age discrimination (Finkelstein & Farrell, 2007; Truxillo, Finkelstein, Pytlovany, & Jenkins, 2015). For example, Wegge and colleagues (Wegge et al., 2012; Wegge & Schmidt, 2009) investigated the relationship between age diverse teams and team effectiveness (ADIGU project). The ADIGU model suggested mediation effects of age salience, age stereotypes, and emotional as well as cognitive conflicts of the relationship between age diversity and team effectiveness (e.g., Wegge et al., 2012). In particular, results showed that increase in age diversity in teams enhances the salience of age differences that in turn may activate age stereotypes (i.e., negative attitudes towards older workers). These stereotypes may be manifested in emotional and cognitive conflicts within the team, which may decrease team effectiveness and well-being. Age stereotypes include overt-explicit age stereotypes that are conscious to the decision-maker, and covert-implicit age stereotypes that are often beneath a person's conscious awareness (Fazio & Olson, 2003; Greenwald & Banaji, 1995; Greenwald, Poehlman, Uhlmann, & Banaji, 2009; Jost et al., 2009). Although much has been researched about explicit stereotypes in the workplace literature (e.g., Posthuma, Wagstaff, & Campion, 2012), covert or implicit stereotypes that may lead to subtle, indirect, or unnoticed discrimination (Fazio & Olson, 2003;

Uhlmann et al., 2012) have been overlooked in workplace age discrimination research (Greenwald, McGhee, & Schwartz, 1998; Truxillo, Cadiz, & Hammer, 2015).

Based on the implicit ageism framework (i.e., that people prefer younger people over older people; Levy & Banaji, 2002), and the dual-process model of explicit and implicit attitudes (i.e., that two sets of processes operate in parallel to one another; Fazio & Olson, 2003; Strack & Deutsch, 2004), the current study examines the effects of both explicit and implicit age stereotypes on the evaluation of resumes of older and younger job applicants. Specifically, it examines whether implicit and explicit age stereotypes produce negative outcomes for older applicants by favouring younger applicants and/or by disfavouring older applicants. We tested these hypotheses in the present study by implementing a within-subjects experimental design, which is a standard approach in social psychological research on implicit stereotypes. Specifically, we assessed explicit age stereotypes towards younger and older applicants using a well-established explicit age stereotype questionnaire (Cleveland, Festa, & Montgomery, 1988). We also measured implicit age stereotypes using an Implicit Association Test (IAT), which is the predominant method for assessing implicit attitudes and has been recommended for use in organizational studies (Haines & Sumner, 2006; Uhlmann et al., 2012).

We chose to study workplace age stereotypes in the context of resume screening for two reasons. First, although resume screening is a nearly universal first stage of the hiring process in most organizations, it has been under-studied in the work psychology literature compared to other selection methods (Derous, Ryan, & Nguyen, 2012; Gatewood, Feild, & Barrick, 2016). Second, we hypothesize that age stereotypes are likely to affect the resume screening process because it has been shown that this stage of the hiring process can be particularly vulnerable to bias (Derous & Decoster, 2017; Derous, Ryan, & Serlie, 2015). Since at this stage applicants are

evaluated on the basis of a one- or two-page resume, the decision-maker has relatively little information about the "deep traits" (Harrison, Price, Gavin, & Florey, 2002) of the applicant. Instead, they will often rely on more superficial characteristics in making their selection, a condition under which stereotypes are more likely to operate (Fazio & Olson, 2003). As suggested by previous research, category-based information (e.g., age) will be have stronger effects when limited individualized information are available, such as in resume screening, and consequently group stereotypes (e.g., about older vs younger people) may be easily activated, influencing how people judge others (Abrams et al., 2016; Derous & Decoster, 2017).

Moreover, it is important to note that there is no clear consensus among researchers regarding what is meant by an "older worker" or "younger worker" (Finkelstein & Farrell, 2007). This is because chronological age and occupational age do not necessarily overlap, and there are individual differences in the aging process (Baltes, Reese, & Lipsitt, 1980). People differ in the quality and type of experience they gain each year, as well as in the amount of cognitive and physical resources they may lose (Pitt-Catsouphes, Matz-Costa, & Brown, 2010). Further, the age at which people enter or exit the workforce may differ. However, chronological age is by far the most objective parameter available to study the effects age discrimination. Therefore, being cautious about differences between chronological age and occupational age, we decided to use age cutoffs suggested in previous studies conducted in the USA and Europe (Bertolino, Truxillo, & Fraccaroli, 2013; Truxillo, McCune, Bertolino, & Fraccaroli, 2012). Thus we defined a younger worker as 34 years old or younger and an older worker as 50 years old or older [1].

Dual-Process Model of Explicit and Implicit Attitudes

The dual-process model of explicit and implicit attitudes supports the idea that two sets of processes operate in parallel to one another (Fazio & Olson, 2003; Strack & Deutsch, 2004).

Extended research shows that while explicit processes are influenced by cognitive and motivational forces (e.g., social desirability), implicit processes are far less subject to deliberative influences and can occur automatically (Fazio & Olson, 2003; Greenwald & Banaji, 1995; Greenwald et al., 2009; Strack & Deutsch, 2004). For example, Greenwald, Poehlman, Uhlmann, and Banaji (2009) found that for predicting socially sensitive topics (e.g., discrimination in the workplace) the predictive power of an implicit measure was higher than that of an explicit measure, supporting a dual-process model. Therefore, the authors suggested that both implicit and explicit attitudes should be measured when trying to predict attitudes or preferences involving sensitive topics (e.g., selection process of older and younger workers). Extensive research shows that automatically activated stereotypical perceptions can influence a wide range of social judgments and behaviours, such as hiring-related decision (Agerström & Rooth, 2011; Chaxel, 2015; Derous, Nguyen, & Ryan, 2009; Derous et al., 2012; Rudman & Glick, 2001). For example, Agerström and Rooth (2011) showed that automatic associations reliably predict labor market discrimination, such as hiring decisions. In particular, in an unobtrusive field experiment, hiring managers holding more negative automatic stereotypes about the obese were less likely to invite an obese applicant for an interview. Moreover, research shows the unique predictive power of implicit stereotypes over explicit stereotypes in predicting negative hiring decisions involving socially disadvantaged groups, such as women, ethnic minorities, and obese people (Agerström & Rooth, 2011; Chaxel, 2015; Derous et al., 2009; Derous et al., 2012; Rudman & Glick, 2001). However, research is lacking on the simultaneous effects of both explicit and implicit age stereotypes in the hiring process, such as in resume screening of older and younger job applicants.

In line with the dual-process model of explicit and implicit attitudes, the present study is the first to assess both explicit and implicit age stereotypes on the ratings of older and younger job applicants. Through the examination of the combined effects of both implicit and explicit age stereotypes, the present contribution offers the opportunity to better understand the complexity of age discrimination in the workplace. Specifically, it considers the different predictive power of implicit and explicit measures (i.e., with each kind predicting unique variance) in hiring decisions (i.e., resume screening process) by examining whether implicit and explicit age stereotypes produce negative outcomes for older applicants through favouring younger applicants and/or by disfavouring older applicants.

Implicit Ageism Framework

The implicit ageism framework suggests that, in general, people have preferences for younger over older people, believing that older people may contribute less to society (Levy & Banaji, 2002) [2]. Indeed, often popular beliefs associate older individuals with physical and cognitive declines, affecting the expectation of their potential contributions to society and becoming targets of negative stereotypes. In particular, in organizational contexts, the employer may avoid hiring older people because of (explicit or implicit) beliefs that they will be the "worst" workers compared to younger candidates and that they will provide fewer years of return on any investment (Abrams et al., 2016; Finkelstein, Burke, & Raju, 1995). However, research shows that older workers can be a better long-term investment because they are less likely to quit compared to younger workers (Posthuma & Campion, 2009). Similar to other forms of modern prejudice, ageism manifests in terms of both explicit as well as implicit forms (Fazio & Olson, 2003; Greenwald & Banaji, 1995; Levy & Banaji, 2002; North & Fiske, 2012). Explicit ageism occurs when there is a conscious awareness or control in an individuals' thoughts, feelings, and

actions toward older people. For example, a recruiter can believe that older candidates will perform less well than younger workers on the job, and he/she deliberatively poses more difficult questions to an old than a young candidate during the interview. On the other hand, implicit ageism operates without complete conscious awareness or control (Levy & Banaji, 2002). For example, a recruiter is not aware of his/her preference for younger workers, however this influences his/her nonverbal behavior (e.g. interpersonal distance, leaning behavior, etc.) so as to make the old, compared to the young, candidate less at ease during the interview. Introducing the implicit ageism framework, Levy and Banaji (2002) suggest that implicit attitudes about age seem especially insidious compared to other forms of "–isms" because of two aspects: first, the lack of strong, explicit hatred toward older people (unlike for religion, race, ethnicity, and gender); second, the lack of strong social sanctions against expressions of negative attitudes and beliefs toward older people (i.e., unlike racism, ageism does not provoke shame). Moreover, the authors suggested that chronic exposure to negative images of aging in the environment can continue to operate in both conscious and unconscious forms throughout life (e.g., once age stereotypes have been acquired, they can be automatically activated by the "presence" of an older person). The implicit ageism framework has been used in explaining preferences in hireability (i.e., evaluations regarding the suitability of a candidate for a job) of younger over older candidates (Abrams et al., 2016). Specifically, Abrams and colleagues (2016) found that older job applicants may be vulnerable to implicit ageist assumptions, that is, to be sorted into low-status work roles (i.e., marginal contribution to the organization) compared to high-status work roles expected for their younger colleagues, even when an older applicant possesses highly valued traits and skills.

Hypothesis Development

Discrimination toward Older Job Applicants

Although heightened societal sensitivity to age issues is reflected in laws banning age discrimination in the United States and in Europe, older workers may suffer from both formal and informal discrimination in the workplace (Ng & Feldman, 2012; Posthuma & Campion, 2009). However, meta-analytic studies have found weak support for the relationship between age and core task performance (Avolio, Waldman, & McDaniel, 1990; McEvoy & Cascio, 1989; Ng & Feldman, 2008; Waldman & Avolio, 1986) and that age has a slightly positive relationship with organizational citizenship behaviours (Ng & Feldman, 2008). Research also suggests that cognitive aging has few effects on job performance (Müller et al., 2015). However, despite age not being related to job performance, older applicants are considered less suitable to be hired (Abrams et al., 2016; Blaine, 2012; Derous & Decoster, 2017) or promoted (Bal et al., 2011) than are younger candidates, and they may face longer re-employment times after layoffs (Wanberg et al., 2016). A review of age discrimination in employment interviews (Morgeson, Reider, Campion, & Bull, 2008) found that older applicants received lower ratings and hiring recommendations than younger applicants with the same or similar qualifications (Avolio & Barrett, 1987; Finkelstein et al., 1995). Consistent with these past studies and the implicit ageism framework (Levy & Banaji, 2002), we predict that older applicants will experience more discrimination in the hiring process than younger counterparts as shown through more negative hiring evaluations. This leads to our first hypothesis:

Hypothesis 1: Older applicants will be rated as less hireable than younger applicants.

Explicit and Implicit Stereotypes in Discrimination toward Older Job Applicants

Focusing on ageism in organizational contexts, research to date has demonstrated the existence of explicit age stereotypes about older workers and job applicants (Abrams et al., 2016; Derous & Decoster, 2017; Gordon & Arvey, 2004; Ng & Feldman, 2012; Posthuma & Campion, 2009) as well as their negative effects on work outcomes. For example, participants with negative explicit stereotypes of older workers were more likely to negatively evaluate older applicants compared to younger applicants for a stereotypically younger job (e.g., Perry, Kulik, & Bourhis, 1996). A literature review by Posthuma and Campion (2009) identified five major negative stereotypes about older workers, such as being poor performers, being more resistant to change, being less able to learn, turning over more quickly, and being more costly than younger workers. Similarly, a meta-analysis identified (and generally debunked) six common stereotypes about older workers, which were being less motivated, less willing to participate in training and career development, more resistant and less willing to change, less trusting, less healthy, and more vulnerable to work-family imbalance (Ng & Feldman, 2012). Recent research suggests that younger workers can also be susceptible to some negative stereotypes, for example, being seen as less conscientious (Bertolino et al., 2013), unmotivated and unreliable (Finkelstein, Ryan, & King, 2013), or even disloyal (Deal, Altman, & Rogelberg, 2010). However, the majority of studies have found that stereotypes towards older adults are broader, and their effects prevail over stereotypes towards other age groups (Posthuma & Campion, 2009), as suggested by the implicit ageism framework (Levy & Banaji, 2002). Similar to other types of "–isms", such as racism and sexism that tend to target certain groups more saliently, older adults potentially are harmed by ageism to a higher degree than other age groups (North & Fiske, 2012). In the current

paper, we use the term negative age stereotypes to refer to the negative beliefs about older workers.

According to the implicit ageism framework (Levy & Banaji, 2002) and previous research (e.g., Perry et al., 1996), explicit age stereotypes in the workplace tend to target older workers more than younger workers. Therefore, this negatively impacts the evaluations of older candidates compared to younger candidates applying for the same job. Moreover, as suggested by the dual-process model of explicit and implicit attitudes (Fazio & Olson, 2003; Strack & Deutsch, 2004), explicit stereotypes occur with conscious awareness, influenced by cognitive and motivational forces. In particular, in a selection process an individual/recruiter with explicit stereotypes against older workers will deliberatively disfavor them, for example, rating an older applicant as less suitable for a job than a younger applicant. Therefore, in the current study we expect that negative explicit age stereotypes will negatively and deliberately affect hiring decisions for older applicants. This leads to our second hypothesis:

Hypothesis 2: Individuals with negative explicit age stereotypes about older workers will rate older applicants as less hireable than younger applicants.

As previously noted, the effects of implicit age stereotypes on workplace decisions about older workers and job applicants have yet to be investigated. For example, Perry, Kulik, and Bourhis (1996) considered only explicit stereotypes against older workers in a selection context. However, stereotype research in areas outside of older worker stereotypes has shown that implicit stereotypes predict negative hiring decisions involving other socially disadvantaged groups (e.g., women, ethnic minorities, obese people) over and above the variance explained by explicit stereotypes (Agerström & Rooth, 2011; Chaxel, 2015; Derous et al., 2009; Derous et al., 2012; Rudman & Glick, 2001). For example, job recruiters with negative implicit stereotypes

towards Arabs (versus Swedes) were significantly less likely to offer a job interview to an Arab applicant. Native Swedes were three times more likely to receive callback interviews (Rooth, 2007). Similarly, Dutch participants' negative implicit stereotypes toward Arab applicants predicted their ratings of candidates' job suitability (Derous et al., 2009; Derous et al., 2012). Moreover, implicit negative stereotyping of women led to lower evaluations of female applicants for a typically masculine job, and to lower performance evaluations of females compared to males (Chaxel, 2015). Finally, recruiters who implicitly associated obese people with low productivity were less likely to invite obese applicants for an interview compared with normal-weight applicants (Agerström & Rooth, 2011).

Based on these past studies that demonstrated how implicit stereotypes affect workplace decisions involving other negatively stereotyped groups (e.g., women, ethnic minorities, and obese applicants), and the implicit ageism framework (Levy & Banaji, 2002), we hypothesize that implicit stereotypes about older workers will influence the hireability ratings of older job applicants compared with younger job applicants. As suggested by the dual-process model of explicit and implicit attitudes (Fazio & Olson, 2003; Strack & Deutsch, 2004), implicit stereotypes can operate without conscious awareness or control, occurring automatically. For example, in a selection process a recruiter with unconscious preferences for younger workers can have nonverbal behavior (e.g. interpersonal distance, etc.) that make the old candidate less at ease during the interview. Therefore, in a selection process an individual/recruiter with implicit stereotypes against older workers will disfavour them without conscious awareness, for example, rating an older candidate as less suitable for a job than a younger candidate. Moreover, because the dual-process model of explicit and implicit attitudes (Fazio & Olson, 2003; Strack & Deutsch, 2004) suggests the unique predictive value of both explicit and implicit stereotypes on

behaviour (Greenwald et al., 2009), we expect that implicit stereotypes will also explain unique variance in hiring evaluations in addition to the effects of explicit stereotypes. This leads to our third hypothesis:

Hypothesis 3: Individuals with negative implicit age stereotypes about older workers will rate older applicants as less hireable than younger applicants.

Method

Participants

One-hundred ten people from northern Italy participated in the study. Participants were recruited through advertisements on university message boards as well as at city libraries and short-term work agencies. Participants' ages ranged from 18 to 65 years (M = 37.49, SD = 13.06), and 50% of the sample was female (n = 55). Ninety-eight percent of participants (n = 108) had work experience, with an average of 15.81 years (SD = 13.17). Most participants (84.5%) reported having worked with an older worker (50 years old or more), and 38.2% reported daily contact with someone in this age group. Similarly, 87.3% reported having worked with a younger worker (34 years old or less), and 47.3% reported having daily contact with someone in this age group. All participants who participated in Phase 1 also completed Phase 2 of the study.

Procedure

A two-phase, laboratory-based experiment was conducted to test the study hypotheses, with all measures and conditions administered via computer. Similar to other studies on discrimination in the screening of resumes (e.g., Derous et al., 2009), in Phase 1 we measured participants' attitudes and explicit and implicit stereotypes. Phase 2 of the study involved an experimental within-subjects design (older vs. younger applicant), in which participants

completed a resume screening task where the age of applicants was manipulated on resumes. In this resume screening task, we held applicant gender, applicant qualifications, and job type constant, and we manipulated the age of the applicant to isolate age stereotyping effects. This is described in greater detail in the Materials section.

In Phase 1 of the experiment, participants always first completed the implicit age stereotypes measure and then completed the two explicit age stereotypes measures (for older or younger workers). This approach limits the effect of presentation order on the implicit-explicit stereotype correlation (Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005). Moreover, the order of the explicit measures of age stereotype towards younger and older workers was counterbalanced. Specifically, half of the participants (via random assignment) completed the measure of explicit stereotypes towards older workers first, and then completed the measure of explicit stereotypes towards younger workers; the other half completed the explicit measures in the opposite order. Finally, participants filled out a questionnaire on social desirability and provided demographic information.

Approximately three days after Phase 1, participants completed Phase 2, which involved a resume rating task [3]. Respondents were asked to imagine that they were a recruiter for a bank's human resources department and to evaluate resumes for a bank teller position, a job which was determined to be age-neutral in pilot tests (see Materials, below). Participants first read the potential job description. Then they were asked to evaluate, in succession, the resumes of six equally qualified applicants in a randomized order. They rated each applicants' hireability as the dependent variable of interest [4]. Applicant age was manipulated on the resumes, such that three resumes were for older applicants (50, 54, and 55 years old), and three were for younger applicants (26, 28 and 30 years old). Note that reporting an applicant's age on a resume is a

standard practice in Europe; for example, candidate age is included in the European Union's official CVs templates (https://europass.cedefop.europa.eu/en/documents/curriculum-vitae). At the end of the task, as a manipulation check, participants were asked to report with an open-ended question how many applicants were within the age range of "less than 50 years old" or "50 years old or above".

Materials

Prior to conducting the experiment, we completed two pilot studies to develop the experimental materials. If required, all measures were translated into Italian using Brislin's (1970) classic back-translation approach. Further details on the pilot studies and the experimental materials, including the measures, are available from the first author upon request.

Pilot study 1: Selection of an age-neutral job and resume development. The first pilot study, conducted in Italy, was used to select an age-neutral job for which the 6 hypothetical applicants were applying. Thirty-nine students took part [age range 19 – 57 years old, M = 31.3 years, SD = 12.66; 33.3% males (n = 12)]. Sixty-six jobs were evaluated, selected from the U.S. Department of Labor's O*Net database (http://www.onetonline.org/). For each job, participants first indicated if it was appropriate for older or younger workers (Likert scale from 1= *34 years old or less*, to 7 = *50 years old or more*). Next, they reported their perceptions of the average age of the person who commonly held that job type (open-ended question). From these pre-test data, we ultimately selected a bank teller job, because this profession was found in the pre-test to be age-neutral: The average perceived age of a bank teller was 41 years old, and it was perceived as appropriate for both older and younger workers (*M*=4.15, interrater agreement = 1.08 [5]). This is consistent with past studies that have also shown that bank teller is a gender-neutral job (Gabriel, Gygax, Sarrasin, Garnham, & Oakhill, 2008).

Each of the six short resumes contained equivalent information: the applicant's photo, name, age, a humanities degree from the same university where the data were collected, and a short work description of a bank teller position which the applicant had held in the last two years. Descriptions of work experience used on the resumes were based on job analysis material from the U.S. Department of Labor's O*NET database. Each description contained at least two activities reported in O*NET as the most relevant for a bank teller position, with one activity related to direct contact with clients and one activity related to data management. Moreover, we used 2 versions of the CV sets to make sure that the potential differences in evaluations would not arise from differences in work experience blurbs. The material that was in CVset1 was the description of the younger applicants' work experience. The same material was presented in the CVset2 description of the older applicant. In other words, the experience listed on each of the six CVs for younger applicants corresponded to the experience listed on the six CVs for older applicants.

Six photos of men were selected from a pool of 25 resume-like face photos retrieved from Minear and Park's on-line database (2004). To control for gender effects, all six photos were male: Three photos were of younger male adults, and three photos were of older male adults. All photos were evaluated in pilot study 2 (see below) as equal in terms of pleasantness, familiarity, competence, dependability, and warmth (all $ts < 1.70$ and all $ps > .05$). The person's actual age was indicated in the original photo database. Moreover, to assure that the selected pictures were perceived as younger or older workers, we asked participants to rate the perceived age of the men in the pictures.

Pilot study 2: Development of implicit age stereotypes measure (IAT). Implicit age stereotypes were measured using an Implicit Association Test (IAT) (Greenwald et al., 1998).

The IAT has shown high levels of internal, convergent, discriminant, and predictive validity (for an extensive review see Fazio & Olson, 2003 and Greenwald et al., 2009), and it has been recommended for use in organizational settings (Haines & Sumner, 2006; Uhlmann et al., 2012). The purpose of pilot study 2 was to select test material for IAT stimuli and resumes, including older and younger adults' pictures. Pictures used in existing age IATs tend to focus on much older people (often the "old old", e.g., over 70 years old), while the present study focused on older people who were of working age, that is, those over 50. For this reason, we developed an IAT focusing on older men who were still of working age (under 65 to fit the Italian context). Thirty-two students took part in pilot study 2 [age range 23- 42, M = 29.68, SD = 4.38; 68.8% males (n = 22); average working experience = 3.41 years, SD = 3.83].

On the IAT, participants categorized words indicating a good worker or a bad worker and faces of a younger worker or of an older worker, and this material was also pre-tested. For the visual stimuli, we selected photos of 5 younger and 5 older men among 25 photos of men retrieved from Minear and Park's on-line database (2004). Only the set of photos rated as equally pleasant and familiar (all ts < 1.70 and all ps > .05) was used so that these factors would not affect our findings. On average, the older men in the photos were rated as 63 years old, and younger men as 20 years old. Note that the IAT photographs and resume photographs were different photos to avoid any potential stimulus familiarity effects.

In the IAT, we used the terms *good worker* and *bad worker* as attribute labels. We pre-tested whether 50 adjectives described a good or a bad worker (1 = *good worker*, 7 = *bad worker*), and whether they described a younger or an older worker (1 = *older worker*, 7 = *younger worker*). The list included adjectives related to two key determinants of performance: competence and motivation (e.g., Schmitt, Cortina, Ingerick, & Wiechmann, 2003). The ten

selected words were age-neutral adjectives that described neither an older nor a younger worker (e.g., were rated at the midpoint of the scale). Among these, five were strongly related to the concept of a *good worker*: *competent, motivated, responsible, able,* and *hard-working,* and five to the concept of a *bad worker: demotivated, unreliable, incapable, low-skilled,* and *negligent*.

Measures

Older/younger worker implicit stereotype measure (IAT). Administered in Phase 1 of the actual experimental study, the IAT was created using the above pretested materials and administered following standard procedures for developing IATs (Greenwald et al., 1998). In each trial, participants categorized the stimuli (either a picture of an older or younger worker or a good or bad word) presented on a computer screen into the appropriate category. In the IAT, the stereotype congruent block of trials –the block assumed to be stereotype consistent with the participants' automatic associations – involved older worker/bad worker and younger worker/good worker categorization pairings. The stereotype incongruent block – the block assumed to be stereotype inconsistent with the participants' automatic associations – included older worker/good worker and younger worker/bad worker categorizations. An automatic negative age stereotype against older workers is shown to the degree that the stereotype-congruent sorting task (older worker/bad worker and younger worker/good worker) is performed more quickly than the stereotype-incongruent sorting task (older worker/good worker and younger worker/bad worker).

The IAT consisted of 5 blocks, with 20 trials in learning blocks and 40 trials in pairing blocks. Stimuli were presented individually in the center of the computer screen in randomized order. The categories were presented on the top left and right corner, and participants categorized words and faces by pressing one of two keys ("*d"* or "*k"*) on the computer keyboard. The first

two blocks are used to familiarize the participant with the sorting task. In the first block (20 trials), participants were asked to categorize face photos into two categories: *older worker* (key "*d*") vs. *younger worker* (key "*k*"). In the second block (20 trials), respondents categorized word attributes of a *good worker* (competent, motivated, responsible, able, and laborious; key "*d*") or of a *bad worker* (demotivated, unreliable, incapable, low-skilled, and negligent; key "*k*"). The third block (40 trials) was a pairing block where the participant sorted both the photos and the attribute stimuli into the four different categories. This block involved the stereotype incongruent pairing. That is, left key "*d*" was the correct response for the *older worker photo* and for *good worker attribute*, and the right key "*k*" being the correct response for the *younger worker photo* and *bad worker attribute*. The fourth block (20 trials) involved relearning how to sort the photo stimuli with the reverse key mapping. That is, those participants who earlier had the category *older worker* mapped to key "*d"* now had it mapped to key "*k"* and *younger worker* mapped to key "*d"*. The fifth block (40 trials) was again a pairing where participants sorted both photos and attribute stimuli to the four categories, but this time according to a stereotype congruent mapping scheme. That is, the attribute category *bad worker* shared a response key with the photo category *older worker,* whereas the attribute category *good worker* shared a response key with the photo category *younger worker.* For half of the participants, the initial mapping of category labels was first the key "*d*" for *older worker* and the key "*k*" for *younger worker* and for the other half of the respondents it was the opposite, the key "*k*" for *older worker* and the key *d* for *younger worker*. This is a standard procedure to assure counterbalancing of the block order and to avoid the effects related to associating older workers first with either good or bad worker attributes(for details see Greenwald et al., 1998; Greenwald, Nosek, & Banaji, 2003).

Participants were instructed to categorize the words and photos as quickly and correctly as possible. Accuracy of word categorization (error percentages) was recorded to eliminate participants who answered randomly. We have calculated IAT scores only for participants that correctly categorized at least 75% of the stimuli; 9 others who did not meet this benchmark were treated as missing in the analyses. Speed (response latency in msec) was recorded to calculate the IAT-measure *"d"*. This measure indicates the relative ease with which participants make associations between pairs of contrasted categories (older worker vs. younger worker photos) and evaluations (good worker vs. bad worker attributes). Implicit age stereotyping against older workers is present when *younger workers' photos* are paired more quickly with the *good worker* characteristics (congruent condition) than when *older worker photos* are paired with the same characteristics (incongruent condition).

Explicit age stereotype. Explicit age stereotypes were also measured in Phase 1 of the experimental study. Participants were asked to rate older and younger workers on 7 semantic differential items from Cleveland, Festa, and Montgomery (1988). It is a well-established measure, and since the time it was created until now it has consistently been used in studying age stereotypes in the workplace (see for example: Cleveland, Fisher, & Walters, 2016; Lundmann, 2016). This type of rating scale was developed to measure the connotative meaning of objects, events, and concepts. The connotations are used to derive the attitude (positive vs. negative). The scale construction is neutral, and it is not directed towards favouring or disfavouring older or younger workers. The instructions indicated, "Please evaluate older workers (50 years or more) using the words and phrases below, from 1 = *active* to 7 = *passive*," with middle value titled "neither active, nor passive"; other bipolar adjectives were: 1 = *productive* and 7 = *unproductive*; 1 = *progressive* and 7 = *old-fashioned* ; 1 = *bold* and 7 = *cautious*; 1 = *creative* and 7 =

uncreative; 1 = *trainable* and 7 = *untrainable*; 1 = *motivated* and 7 = *unmotivated* ($\alpha_{younger}$ = .82, α_{older} = .83).

Hireability. In Phase 2 of the laboratory study, participants evaluated how hireable applicants are based on the applicants' resumes. Hireability was measured in two ways, namely, a general evaluation of the applicant and the applicant's expected task performance. The *general evaluation* of each applicant was measured with 3 items: "My overall impression of this applicant is …" (1 = *very unfavorable*; 6 = *very favorable*) from Bart and colleagues (Bart, Hass, Philbrick, Sparks, & Williams, 1997); "This applicant is suitable for this job" (1 = *not at all*; 6 = *completely*), and "The likelihood that I would invite this person for an interview is …" (1 = *very low*; 6 = *very high*) from Derous and colleagues (2009). The intercorrelations among these questions ranged from .72 to .84 for the younger worker condition, and from .82 to .90 for the older worker condition. Therefore, we combined these three items into one index of general evaluation ($\alpha_{younger}$ =.90; α_{older} =.93). Second, *expected task performance* was measured using 4 items adapted by Van Dyne and LePine (1998) from Williams and Anderson (1991). A sample item is, "The applicant will meet formal performance requirements of the job" (1 = *strongly disagree*; 6 = *strongly agree*), ($\alpha_{younger}$ =.92, α_{older} =.93).

Control variables. Participant demographic variables can affect the evaluations of older and younger workers (Posthuma & Campion, 2009; Shore & Goldberg, 2005). These demographic variables include the evaluator's age or gender (e.g., Celejewski & Dion, 1998) and their familiarity with members of the outgroup (Sherif, Harvey, White, Hood, & Sherif, 1961; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). Therefore, participants' *age, gender, work experience,* and *frequency of working contacts with older and younger workers* were measured and used as control variables. Moreover, one's willingness to report age bias might be affected

by social desirability concerns (Crowne & Marlowe, 1960). Therefore, we also measured *social desirability* to be used as a control variable, using the 13-item version of Crowne-Marlowe Social Desirability Scale (Reynolds, 1982). A sample item is "I'm always willing to admit it when I make a mistake" (1 = *strongly disagree*; 6 = *strongly agree*) (α = .68). Given recent concerns with the use of control variables, we also ran the analyses without these controls, and the results remained unchanged (Becker et al., 2016).

Manipulation check. At the end of the resume rating task, as a manipulation check, participants were asked to report with an open-ended question how many applicants were within the age range of "less than 50 years old" or "50 years old or above" [3]. Eighty percent (n = 88) of participants correctly indicated that 3 resumes referred to older applicants and 3 to younger applicants, and all respondents reported at least 2 resumes in each age range ($M_{younger}$ = 3.02, $SD_{younger}$ = .41; M_{older} = 2.97, SD_{older} = .44). Therefore, all original participants were kept in the dataset for the analysis based on the manipulation check.

Analysis strategy

Because each participant evaluated both younger applicants' and older applicants' resumes, we used an analysis strategy that takes into account within-persons effects. Specifically, we analyzed the data using the method developed by Judd, Kenny, and McClelland (2001) for the analysis of within-person moderation effects/interactions. This method has been used in previous organizational studies that use within-persons experimental designs (e.g., Parker, Johnson, Collins, & Nguyen, 2013) including studies of workplace discrimination and stereotyping (e.g., Derous et al., 2009). In the present study, we were testing whether the interaction between the age of the applicant for the job (within-persons variable) and participants' implicit or explicit age stereotypes (between-persons variable) affects the hireability

ratings of younger and older applicants. Thus, the difference contrast between participants' ratings of hireability of younger resumes and older resumes (dependent variable) was computed and then regressed onto the independent variables of interest. In the regression equation, the main effect of the independent variable (stereotype) on the dependent variable (contrast between hireability ratings of older and younger resumes) already implies an interaction; that is, a significant relationship between the stereotype and the hireability contrast will reflect that different ratings are given to younger and to older applicants' hireability depending on the stereotype of the participant (Judge, Bono, Thoresen, & Patton, 2001).

In the regression analysis, the predictors were standardized in order to facilitate the interpretation of coefficients. In the first step, the control variables were entered (participant age, gender, work experience, and frequency of contact with younger and older workers). In the second step, we entered participants' explicit age stereotype (Hypothesis 2). In the third step, participants' implicit age stereotype was entered (Hypothesis 3). Table 2 shows the results of the regression analyses for general evaluation ratings and Table 3 for task performance ratings. It is important to note that the analyses were also performed with no control variables and that all effects remained statistically significant (Becker et al., 2016).

Results

Implicit and Explicit Age Stereotypes

In order to measure participants' implicit age stereotypes against older workers, we used the IAT scoring guidelines developed by Greenwald and colleagues (2003). The IAT-effect *d* score was calculated as the difference in average response speed (latency in milliseconds) between the compatible (stereotype consistent) and incompatible (stereotype inconsistent) pairing conditions, divided by the standard deviation of all latencies for both pairing conditions.

That is, a negative implicit age stereotype toward older workers is indicated by a faster pairing of younger worker photos and words describing a "good worker" (compatible condition) compared to older worker photos and words describing a "good worker" (incompatible condition). Greenwald and colleagues (2003) suggest interpreting the IAT effect sizes using criteria for small, medium, and large effect sizes of Cohen's *d* measure (1977). That is, an IAT *d* score of .20, .50, and .80 could be considered respectively as small, medium, and large. The effect size in the present study averaged .53, which indicates a medium effect. On average, participants were faster in associating attributes of the category "good worker" with photos of younger workers, than associating attributes of the category "good worker" with photos of older workers. On average, participants of all ages displayed a medium negative implicit age stereotype, a finding which is consistent with past research (e.g., Nosek et al., 2007).

Moreover, on average, participants displayed a more negative explicit age stereotype towards older (M = 3.86, SD =.95) than younger workers (M = 2.38, SD = .84); $t(109) = 13.18$, p =.00. Participants' IAT scores were not correlated with their explicit responses (r = -.01, p = .90), which is consistent with some previous research on the relationship between implicit and explicit attitudes (see Nosek & Smyth, 2007, for an overview). Subsequently, we calculated an explicit negative age stereotype against older workers index for each participant by calculating the difference between the explicit age stereotype towards older and towards younger workers (M = 1.48, SD = 1.18).

Resume Evaluations of Younger and Older Applicants

Hypothesis 1: Applicant hireability. Testing Hypothesis 1, participants evaluated younger applicants more positively than older applicants on both measures of hireability. Specifically, older applicants received more negative general evaluation ratings (M_{older} = 4.03, SD_{older} = .93;

$M_{younger}$ = 4.37, $SD_{younger}$ = .72; t(109)= -3.50, p = .00) and more negative task performance ratings (M_{older} = 4.17, SD_{older} = .95; $M_{younger}$ = 4.45, $SD_{younger}$ = .79; t(99)= -3.36, p = .00) than younger applicants. These results support Hypothesis 1 and are consistent with prior research on the relative hireability of older and younger workers (Bal et al., 2011; Finkelstein & Farrell, 2007; Posthuma & Campion, 2009).

We performed a CFA, using the covariance matrix as input and maximum likelihood as the estimation method, on General Evaluation and Task Performance due to the correlation between these two variables (r = .84, p < .01). The CFA 1-factor model for younger applicants (χ^2 (10) = 23.43, p = .00; RMSEA = .10; NNFI = .98; CFI = .99) was compared to the CFA 2-factor model for younger applicants (χ^2 (9) = 15.94, p = .07; RMSEA = .07; NNFI = .99; CFI = 1.00). The chi-square difference test was significant ($\Delta\chi^2$ (1) = 7.49, p < .05); thus, the model with 2 factors was preferred. Similarly, the CFA 1-factor model for older applicants (χ^2 (10) = 22.28, p = .01; RMSEA = .08; NNFI = .99; CFI = .99) was compared to the CFA 2-factor model for older applicants (χ^2 (9) = 16.86, p = .05; RMSEA = .06; NNFI = .99; CFI = 1.00). The chi-square difference test was significant ($\Delta\chi^2$ (1) = 5.42, p < .05); thus, the model with 2 factors was preferred.

Effects of Explicit and Implicit Age Stereotypes on Resume Evaluation

Means, standard deviations, and intercorrelations for the study variables are presented in Table 1. Among the study variables, general evaluation of the applicant was positively correlated with participants' explicit age stereotype (r = .28, p < .01) and implicit age stereotype (r = .30, p < .01), and task performance was positively correlated with explicit age stereotype (r = .29, p < .01) and implicit age stereotype (r = .21, p < .05), providing initial support for Hypotheses 2 and 3, which we test more formally below. Moreover, participants' explicit age stereotype was

negatively correlated with participant age (r = -.30, p < .01), but this relationship was not found for implicit stereotypes, suggesting that explicit, but not implicit age stereotypes, decrease with the age of the participant.

Hypothesis 2: Effects on general evaluation. Testing Hypothesis 2, the interaction between applicants' age and participants' explicit age stereotype against older workers was significantly related to the ratings of applicants' general evaluation (β = .41, p < .001), accounting for additional unique variance beyond the control variables [ΔR^2 = .13, $\Delta F(1,83)$ = 13.53, p < .001] (see Table 2). Subsequently, we performed analyses for younger and older applicants' evaluations separately to break down the interaction. For the resumes of younger applicants, the effect of explicit age stereotypes on general evaluations was significant and positive (β = .29, p < .05). In contrast, for older applicants, although it was negative in direction, the effect of explicit age stereotypes was not significant (β = -.18, p = .10). As shown in Figure 1, the more strongly participants' endorsed negative explicit age stereotypes, the more positively they rated younger applicants. However, the negative explicit age stereotype had no effect on the ratings of older applicants.

Hypothesis 2: Effects on expected task performance. Similarly, the interaction between applicants' age and participant's negative explicit age stereotype was significantly related to perceptions of task performance (β = .45, p < .001), accounting for additional unique variance [ΔR^2 = .17, $\Delta F(1,93)$ = 20.87, p < .001] (see Table 3). For younger applicants, the effect of explicit age stereotypes on expected task performance was significant and positive (β = .28, p < .01), but not significant for older applicants, although it trended in a negative direction (β = -.16, p = .14). As shown in Figure 2, the more negative the participants' explicit age stereotype was, the more positively they evaluated the younger applicants' task performance, supporting

Hypothesis 2. Negative explicit age stereotypes resulted in more positive evaluations of younger applicants, while it did not result in more negative evaluations of older applicants.

Hypothesis 3: Effects on general evaluation. Hypothesis 3 predicted an interaction between the age of the applicant and implicit age stereotypes. The interaction between applicants' age and participants' negative implicit age stereotype entered in Step 3 of the regression equation was significantly related to the applicants' general evaluation ($\beta = .30$, $p < .01$), accounting for additional unique variance [$\Delta R^2 = .08$, $\Delta F(1,82) = 9.15$, $p < .01$] (see Table 2). For older applicants, the effect of implicit age stereotypes on general evaluations was significant and negative ($\beta = -.30$, $p < .01$), but not significant for the younger applicants' evaluation ($\beta = -.03$, $p = .81$). As shown in Figure 3, participants' implicit negative age stereotype was associated with more negative general evaluations of older applicants, but did not affect their evaluations of younger applicants.

Hypothesis 3: Effects on expected task performance. Similarly, the interaction between applicants' age and participants' implicit age stereotype was related to their ratings of the applicants' potential task performance ($\beta = .18$, $p = .054$), accounting for additional unique variance above the effects of explicit age stereotypes [$\Delta R^2 = .03$, $\Delta F(1,92) = 3.81$, $p = .054$] (see Table 3). As shown in Figure 4, participants' implicit age stereotype tends to be associated with more negative ratings of potential task performance of older applicants ($\beta = -.18$, $p = .07$), but not for younger applicants ($\beta = -.03$, $p = .79$). Thus, Hypothesis 3 was partially supported, as the negative implicit stereotypes led to more negative evaluations of older applicants in terms of general evaluation and to a similar negative tendency in the case of expected task performance.

Note that tests analyses related to Hypotheses 2 and 3 were also performed with no control variables, and all significant effects remained significant [6].

Discussion

Based on the implicit ageism framework (i.e., that people prefer younger people over older people; Levy & Banaji, 2002) and the dual-process model of explicit and implicit attitudes (i.e., that two sets of processes operate in parallel to one another; Fazio & Olson, 2003; Strack & Deutsch, 2004), the current study experimentally examined the effects of both explicit and implicit age stereotypes on hireability ratings of older and younger job applicants. This allows us to gain key insights into how explicit and implicit age stereotypes each affect hiring decisions. First, as suggested by the implicit ageism framework, results found that participants of all ages reported both negative implicit and explicit age stereotypes against older applicants compared to younger applicants. Moreover, participants found resumes of older applicants less hireable than those younger applicants with equal qualifications. According to the dual-process model of explicit and implicit attitudes (Fazio & Olson, 2003; Strack & Deutsch, 2004), negative explicit and implicit stereotypes each explained unique variance in hiring evaluations. Explicit stereotypes occur with conscious awareness, with the idea of deliberatively disfavoring or favoring older workers/younger workers. In particular, our results show that negative explicit age stereotypes had a positive effect on general evaluation and task performance measures of younger applicants, but they had no effect on older applicants' evaluations. Conversely, implicit stereotypes can operate without conscious awareness or control, occurring automatically (e.g., a recruiter can have nonverbal behavior that make the old candidate less at ease during the interview). In particular, our results show that negative implicit age stereotypes had negative effects on older applicants' general evaluation and task performance rating, but they did not affect the ratings of younger applicants. These findings show that explicit and implicit age stereotypes each can lead to negative judgments of older applicants, but in different ways. In this

sense, these findings may help to explain the often-reported relationship between older age and difficulties in employment (e.g., Bal et al., 2011; Posthuma & Campion, 2009; Wanberg et al., 2016). Specifically, explicit negative age stereotypes against older workers may help younger job applicants, while implicit negative age stereotypes may harm older applicants.

Theoretical contributions

The present study makes several theoretical contributions to the literature on age stereotyping and hiring decisions in the workplace. The study is the first examination to include a direct measure of implicit age stereotypes of older and younger applicants – using an IAT with photographs of people of working age – and the corresponding effects of implicit stereotypes on ratings of older and younger job applicants. As such, the present study is also the first to examine combined effects of both implicit and explicit age stereotypes against older job applicants, showing that each kind of stereotype predicts unique variance in hiring decisions. Second, rather than focusing on implicit age stereotypes of much older people who are more likely to be retired from work, the present study examined older people who were of working age (between 55-65 years old). Third, the within-subjects design used in this study better reflects a real-world selection task than would a between-subject design (Hosoda, Stone, & Stone-Romero, 2003), in that hiring managers and decision-makers are typically comparing older and younger job applicants simultaneously. Finally, the study consisted of a sample with a reasonable amount of age diversity (age: M = 37.49 years; SD = 13.06) and work experience (M = 18.81 years; SD = 13.17). Therefore, this work contributes in several ways to the organizational psychology literature and to understanding HR practices related to diversity and inclusion of people of all ages in the workforce.

In the present study, participants tended to associate younger workers with desirable work characteristics (competent, motivated, responsible, able and laborious), and older workers with undesirable working characteristics (demotivated, unreliable, incapable, low-skilled and negligent), rather than the opposite pattern. This response pattern indicates that participants tend to hold a negative implicit age stereotype of older workers that was fairly strong (medium effect size, .53). These results are consistent in direction and size with similar studies on implicit age stereotypes towards older adults (Hummert, Garstka, O'Brien, Greenwald, & Mellott, 2002; Nosek & Smyth, 2007). The magnitude of these effects demonstrates their power in affecting important hiring decisions.

Moreover, our results showed that both implicit and explicit age stereotypes uniquely predicted evaluations of hireability, as suggested by the dual-process model of explicit and implicit attitudes. Although negative explicit age stereotypes led to more positive evaluations of younger applicants, negative implicit age stereotypes were associated with lower evaluations of older applicants. These divergent effects on positive and negative evaluations could be interpreted in the light of social psychological work on positive-negative asymmetry, which states that positive evaluations or group favouritism can be more freely enacted than derogating or discriminating against the outgroup (Blanz, Mummendey, & Otten, 1995; Mummendey, Otten, Berger, & Kessler, 2000). This asymmetry between positive and negative evaluations results because benefiting the in-group is seen as more socially acceptable, while expressing negative evaluations about the out-group is less so (Blanz, Mummendey, & Otten, 1997). That is, it is harder for a rater to psychologically justify harming an outgroup, compared to expressing a positive preference toward the ingroup. In this line of reasoning, explicit age stereotypes likely provided participants with a “justification” to favor younger applicants, but not to discriminate

against older applicants. Conversely, being less consciously available and controllable (e.g., Bohner & Dickel, 2011; Greenwald & Banaji, 1995), the influence of implicit stereotypes is less subject to the socially-desirable, normative pressure of not discriminating. Consistent with this, we found that negative implicit age stereotypes tend to predict negative evaluations against older applicants.

Limitations and Future Research

There are some limitations of the current study that should also be considered as potential avenues for further research. First, although most participants in this study had significant work experience, they were not professional recruiters nor human resource managers who routinely screen resumes as part of their job. Using such a sample would have increased external validity. At the same time, social psychological effects related to the preference for younger over older applicants as described in the study potentially operate for all people (Axt, Ebersole, & Nosek, 2014), not only for formal organizational decision-makers but also for those who may choose work teammates. Moreover, HR professionals were found in a meta-analytic study to be as susceptible as college students to bias in their decisions about applicants, basing their decisions on applicants' attractiveness (Hosoda et al., 2003). It is, therefore, possible that our participants would show the same tendencies as recruiters when making these sorts of evaluations. Still, future research should replicate our results with participants who have expertise in the field of human resource management. As an alternative, a future study could include a direct measure of participants' expertise. In these ways, it would be possible to test a moderation effect of expertise on effects found in the current study.

Second, effects in this study were found for an age-neutral job. The effect sizes might change if we were to test jobs that themselves are age stereotyped. For example, future studies

may find bias to be enhanced for jobs that are associated with younger people, such as a job at a technology company. Moreover, since younger workers can also be susceptible to negative stereotypes, future research may consider jobs in which positive stereotypes are associated with older workers, disfavouring younger workers (e.g., jobs where a certain amount of seniority is expected).

Third, future studies should further investigate why older applicants are disfavoured. For example, older workers might not be seen as good partners in social and working interactions, or they might be seen as less vital and healthy (e.g., Kaufmann, Krings, & Sczesny, 2016). Moreover, with the current statistical design, we were able to analyse the dual-processes of implicit and explicit attitudes. Future studies should also reflect potential congruency effects between implicit and explicit processes.

Fourth, the gender of the older worker in the resumes may also determine the ratings they receive. Specifically, in this study we have controlled for gender by only testing the effect for men. It is also worth exploring age discrimination for women separately, as women may encounter different challenges at the workplace (e.g., Eagly & Karau, 2002).

Finally, given the small convenience sample, and the age range of the raters (18-65 years), we suggest that future research repeat the study with a larger sample, including a larger number of raters who are in the late-career stage (e.g., 50-65), and with more diversified work experiences. We strongly encourage more research in this field in order to show replicability of the findings both in similar and in different samples.

Practical Implications

The growing number of older workers suggests that age discrimination needs to be actively addressed in organizations and societies. Our findings speak to the initial barrier of

obtaining employment for older job applicants, as resume screening is often the first step in applicant screening (Piotrowski & Armstrong, 2006), and only after passing this first step are applicants given more individual attention and opportunity to more fully present themselves. The results of this study suggest that explicit and implicit age stereotypes affect decisions about job applicants through different mechanisms; thus, addressing these different types of stereotypes may require different workplace solutions. Especially if some aspects of age stereotyping are based in unconscious processes, that is, beneath people's conscious awareness, discrimination can continue and persist unnoticed. Therefore, our findings suggest that organizational interventions need to consider both explicit and implicit sources of bias. In particular, it is crucial to educate recruiters and hiring managers about the risks of implicit age stereotypes, that is, stereotypes that they may not be aware that they have. On a more general level, developed countries are committed to extending the working lives of workers (i.e., extending working life or delaying the mandatory retirement age) and to enhancing successful aging (i.e., active, healthy, and dignified aging). Therefore, understanding and removing the obstacles (e.g., implicit and explicit stereotypies against older workers) is an essential step in helping older adults in continuing to contribute to society and is still sorely needed. For example, Italy has one of the oldest populations in Europe (OECD, 2012), but the investment in the older workforce seems not to correspond to this ageing trend (Conen, Henkens, & Schippers, 2012). The political and cultural context is important in influencing organizational policies (Conen et al., 2012). Therefore, encouraging the labour force participation of older people by avoiding explicit and implicit stereotypes in hiring decisions needs attention at different levels (macro-Country, meso-organization, and micro-individual).

Conclusion

People in industrialized countries are working longer for both economic and social reasons. This trend highlights the importance of developing more age-inclusive human resources practices, such as age-neutral recruitment and hiring activities. Our study suggests that, even for an age-neutral job, both explicit and implicit age stereotypes may be at play in discriminatory decisions against older job applicants. These findings raise awareness of the possibility of unconscious reactions to applicants' age and the importance of understanding how to combat both expicit and implicit age stereotypes.

Footnotes

[1] In Italy, the number of people over age 65 has doubled since 1950, and it is continuing to grow, expecting to reach 33% of the population by 2050 (United-Nations, 2009). The increasing number of older people is only partially reflected in the workforce, with a participation rate in the labour force of people age 50-64 of 59% in 2017, compared to 60.9% of people age 25-34, and 73.1% of people age 35-49 (ISTAT, 2017). The lack of attention and investment in older workers in Italy has been underlined (Conen et al., 2012). In addition, in 2015 (when the data were collected), the average age for retirement in Italy was 65 (source ISTAT, http://www.istat.it/it/). In particular, the age at which employees in the private sector (e.g., banking) could draw a seniority pension was around 66 for men and 63 for women, if they have paid social security contributions for a minimum of 20 years.

[2] The implicit ageism framework suggests a general preference towards younger workers. For example, a younger candidate would be preferred over an older candidate applying for an age-neutral job. However, this may work differently for jobs that are old-age stereotyped. For example, a decision-maker may prefer older candidates for jobs that require high experience or expertise (e.g., certain amount of seniority is expected), such as physicians, professors, or leadership positions.

[3] While we cannot completely exclude the possibility that participants made a link between the assessment of explicit attitude in Phase 1 and the resumes' evaluation in Phase 2, the possibility that this happened is unlikely for two main reasons: 1) We would have found that explicit attitude affected the resume evaluation of both older and younger applicants. However, it only predicted the evaluation of the younger applicant. 2) This would have increased the correlation between implicit and explicit attitudes (Hofmann et al., 2005). However, this was not the case as

in our study these variables were not correlated. Further, some research has indicated that ordering of implicit and explicit measures is not likely to affect the results (Nosek, Greenwald, & Banaji, 2005).

[4] Originally, in Phase 2 of the research design, we had an additional between-subjects condition to manipulate time pressure (no time limit vs. time limit). Half of the participants had no time limit to complete the task, while the other half was asked to complete the task in 10 minutes. The time limit of 10 minutes was established based on the average time of 20 participants, who took on average 11.84 minutes to complete the task in a pretest (SD = 3.27). However, upon analysing the results, we found that using a 10-minute time limit was not sufficient to create the intended time pressure manipulation, and the time limit had no effect on the data. Further, independent-samples t-tests showed no significant differences between participants across the two time conditions on demographic variables (age, gender, work experience, frequency of working with older or younger workers), explicit and implicit negative age stereotypes, and hireability (all ts < 1.70 and all ps > .05). Therefore, because the time pressure condition did not accurately induce time pressure as originally designed, and because it had no effect on the IVs and DVs of interest, we collapsed across time pressure conditions.

[5] To measure interrater agreement, we used the average deviation (AD) index developed by Burke, Finkelstein, and Dusig (1999).

[6] We tested additional models where, in the fourth step, we included an interaction between implicit stereotypes, explicit stereotypes, and the applicants' age. The previous effects remained significant and the additional interaction was not significant ($\beta_{\text{interaction on general evaluation}}$ = -.07, p = .55; $\beta_{\text{interaction on task performance}}$ = .08, p = .45).

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Table 1

Means, standard deviations, and intercorrelations for study variables.

	M	*SD*	1	2	3	4	5	6	7	8	9
1. Participant age	37.49	13.06	—								
2. Participant gender	.50	.50	-.07	—							
3. Participant working experience	15.81	13.17	.93 ***	-.11	—						
4. Participant social desirability	2.52	.46	-.20 *	-.09	-.17	—					
5. Participant frequency of working with older workers	5.00	2.28	.38 ***	-.08	.38 ***	-.08	—				
6. Participant frequency of working with younger workers	5.51	2.10	.10	-.09	.13	.38 ***		—			
7. Participant explicit age stereotype	1.48	1.18	-.30 **	.04	-.28 **	.05	-.17	.02	—		
8. Participant implicit age stereotype	.53	.39	-.02	.01	.04	.01	.06	-.07	-.01	—	
9. Applicants' Dgeneral evaluation	.34	.97	.09	-.18	.13	.06	.08	.02	.28 **	.30 **	—
10. Applicants' Dtask performance	.28	.86	.15	-.08	.17	-.06	.17	.06	.29 **	.21 *	.84 ***

Note: N = 110 *(pairwise)*. Participant gender, female = 1 and male = 0. Participant explicit age stereotype = negative explicit age stereotype towards older workers - negative explicit age stereotype towards younger workers. Applicants' Dgeneral evaluation = younger applicants' $_{\text{general evaluation}}$ - older applicants' $_{\text{general evaluation}}$. Applicants' Dtask performance = younger applicants'$_{\text{task performance}}$ - older applicants'$_{\text{task performance}}$. *$p$ < .05; **p < .01; ***p <.001.

Table 2.

Regression analyses for the effects of participants' explicit age stereotype and implicit age stereotype on general evaluation of older and younger job applicants.

Step/variable	*B*	*SE*	*β*	*B*	*SE*	*β*	*B*	*SE*	*β*
Step1									
Participant age	-.22	.31	-.22	-.10	.29	-.11	.08	.28	.09
Participant gender	-.25	.20	-.13	-.26	.19	-.14	-.23	.18	-.12
Participant working experience	.23	.30	.24	.24	.28	.25	.06	.28	.07
Participant social desirability	.11	.11	.11	.08	.10	.09	.07	.10	.07
Participant frequency of working with older workers	.06	.11	.06	.11	.11	.12	.11	.10	.12
Participant frequency of working with younger workers	-.09	.11	-.09	-.12	.10	-.14	-.10	.09	-.11
Step 2									
Participant explicit age stereotype				.37	.10	.40 ***	.39	.10	.41***
Step 3									
Participant implicit age stereotype							.29	.09	.30 **
Change in F		.72			13.53 ***			9.15 **	
R^2		.05			.18 ***			.26 **	
Change in R^2		.05			.13 ***			.08 **	

Note: N = 110 *(pairwise)*. Participant gender, female = 1 and male = 0. Participant explicit age stereotype = explicit age stereotype towards older workers - explicit age stereotype towards younger workers. *p < .05; **p < .01; ***p <.001.

Table 3.

Regression analyses for the effects of participants' explicit age stereotype and implicit age stereotype on evaluation of older and younger job applicants' task performance.

Step/variable	*B*	*SE*	*β*	*B*	*SE*	*β*	*B*	*SE*	*B*
Step1									
Participant age	-.19	.26	-.22	-.09	.24	-.11	-.00	.24	-.00
Participant gender	-.08	.17	-.05	-.11	.16	-.06	-.11	.15	-.07
Participant working experience	.23	.26	.27	.24	.24	.28	.15	.24	.18
Participant social desirability	-.01	.09	-.01	-.03	.08	-.03	-.03	.08	-.03
Participant frequency of working with older workers	.14	.10	.16	.18	.09	.21	.16	.09	.19
Participant frequency of working with younger workers	-.13	.09	-.16	-.15	.08	-.19	-.14	.08	-.16
Step 2									
Participant explicit age stereotype				.39	.08	.45 ***	.39	.08	.45***
Step 3									
Participant implicit age stereotype							.15	.08	.18*
Change in F		.79			20.87 ***			3.80 *	
R^2		.05			.22 ***			.25 *	
Change in R^2		.05			.17 ***			.03 *	

Note: N = 110 *(pairwise)*. Participant gender, female = 1 and male = 0. Participant explicit age stereotype = explicit age stereotype towards older workers - explicit age stereotype towards younger workers. *$p < .05$; **$p < .01$; ***$p < .001$

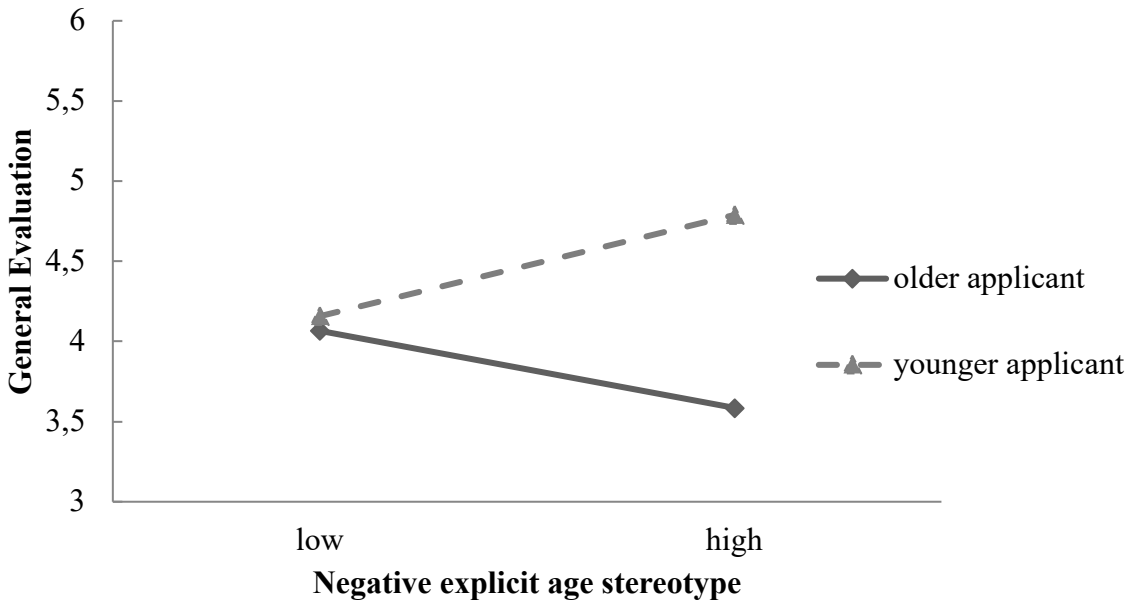

Figure 1. Lower general worker evaluation of older applicants, as an effect of an interaction of applicants' age and participants' negative explicit age stereotype.

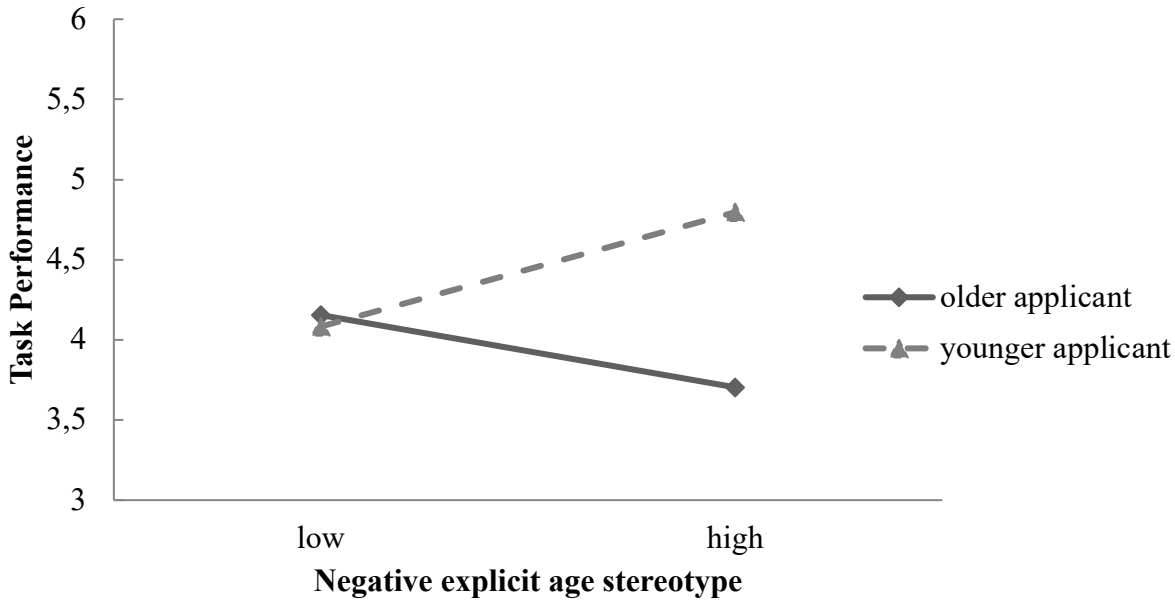

Figure 2. Lower task performance evaluation of older applicants, as an effect of an interaction of applicants' age and participants' negative explicit age stereotype.

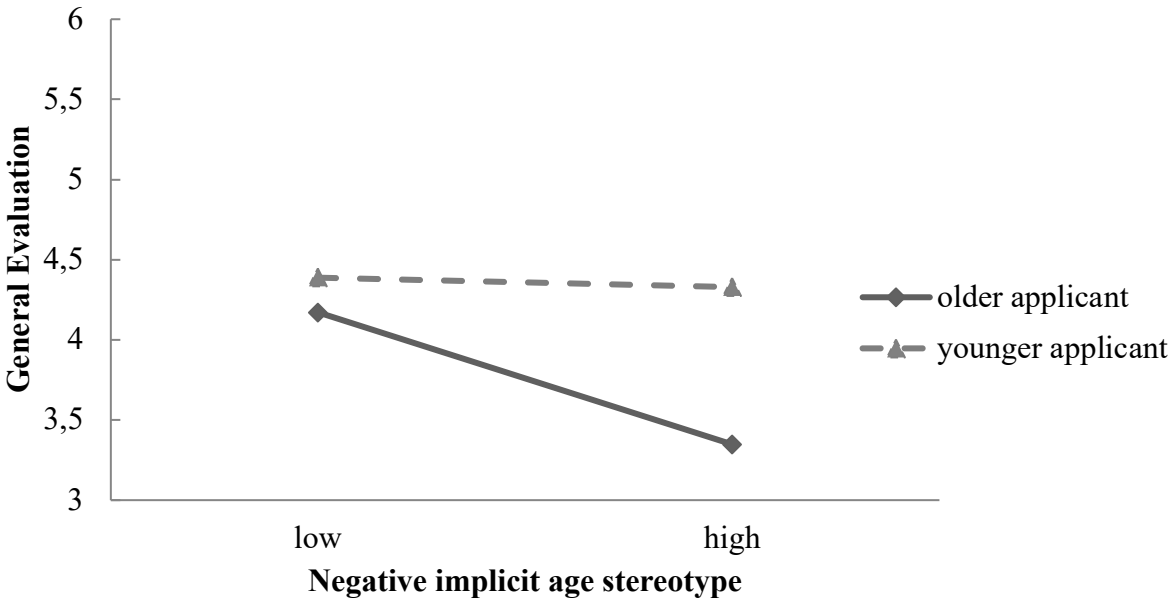

Figure 3. Lower general worker evaluation of older applicants, as an effect of an interaction of applicants' age and participants' negative implicit age stereotype.

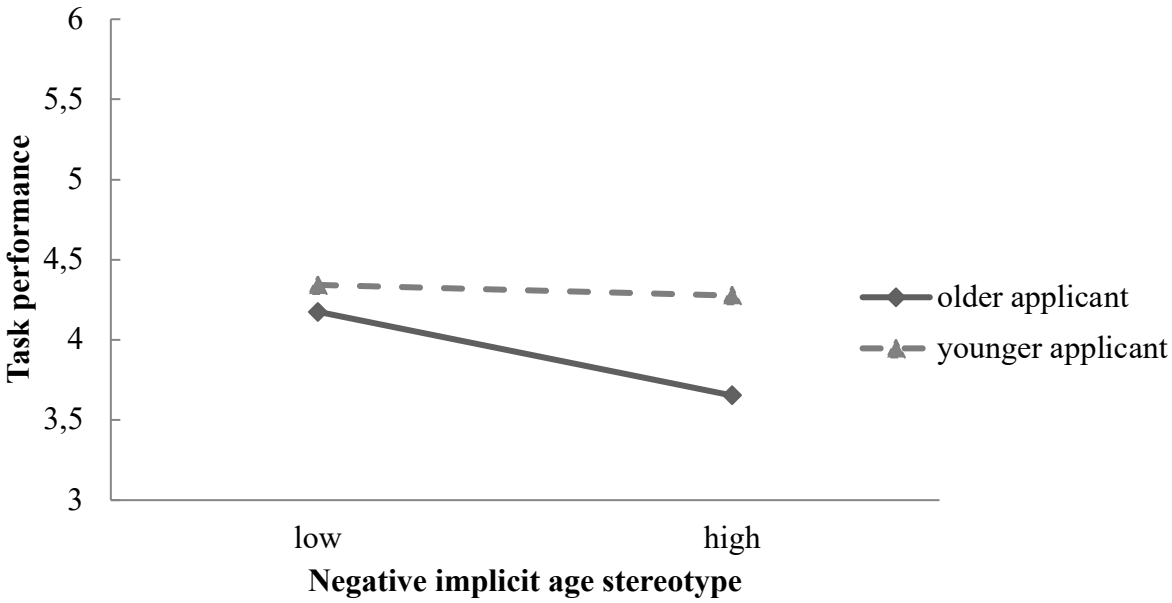

Figure 4. Lower task performance evaluation of older applicants, as an effect of an interaction of applicants' age and participants' negative implicit age stereotype.