Received 9 July 2012
Revised 21 March 2013
23 July 2013
23 August 2013
Accepted 25 August 2013

Selection biases that emerge when age meets gender

Enrica N. Ruggs
Department of Psychology, University of North Carolina, Charlotte, North Carolina, USA
Michelle R. Hebl
Department of Psychology, Rice University, Houston, Texas, USA
Sarah Singletary Walker
Department of Management and Marketing, University of Houston-Downtown, Houston, Texas, USA, and
Naomi Fa-Kaji
Department of Psychology, Rice University, Houston, Tetas, USA

Abstract

Purpose – The purpose of this paper is to examine the interactive effects of gender and age on evaluations of job applicants. Given the double jeopardy hypothesis, the authors might anticipate that older women would be denigrated most in hiring evaluations. However, given expectations of normative gender behavior, the authors might anticipate that older men would be penalized most for not already having stable employment. This study aims to examine which hypothesis best describes selection biases based on age and gender.

Design/methodology/approach – Stimuli depicting male and female job applicants at the various ages were developed. The stimuli were standardized by collecting facial photos of older White men and women at ages 20, 40, and 60, and morphing these faces onto standardized bodies using Adobe Photoshop. Participants viewed six stimuli, one from each age by gender combination, and made evaluations across job relevant dimensions.

Findings – Results showed an interaction between age and gender, such that older male applicants were evaluated more negatively than older female and younger male applicants. These findings support for the violation of gender normative behavior hypothesis.

Practical implications – This study has implications for organizational leaders who can use this information to provide training for selection officers concerning biases against older workers and how to avoid them.

Originality/value – Original, novel stimuli are used in an experimental design to examine the effects of age in employment in a standardized manner which controls for extraneous variables such as attractiveness across age.

Keywords Gender differences, Employment, Discrimination, Stigma, Ageism

Paper type Research paper

The demographic makeup of the American workforce is changing dramatically in a number of ways. In the current article, we consider two of the changes that are leading to a more diverse workforce, namely an increase in older workers and an increase in female workers. Not only is the workforce currently aging, but it is projected to see an acceleration of aging in the future. For instance, it is anticipated that by 2050, 19 percent of the labor force will be comprised by the 55- and older age group (Toossi, 2002). Additionally, the number of individuals who choose not to take early retirement and/or remain in the workforce even after retirement is increasing (Bureau of Labor Statistics, 2009), and estimates suggest increases in the number of

Journal of Managerial Psychology
Vol. 29 No. 8, 2014
pp. 1028-1043

0268-3946
DOI 10.1108/JMP-07-2012-0204

older workers who remain in the workforce with full-time employment (Bureau of Labor Statistics, 2009). Furthermore, it is projected that the number of older applicants seeking employment will increase by over 36 percent by the next decade (Toossi, 2009) and some older applicants are even deciding to return to work after retirement (Needleman, 2008). In sum, it is critical to conduct research on the experiences of older people in the workplace as they are an important component of the labor force.

The participation of women in the workforce also has increased significantly over the last 30 years (Bureau of Labor Statistics, 2011). Women comprise 46.7 percent of the US labor force and occupy 51.5 percent of managerial and professional occupations (Catalyst, 2011). More women than ever are working up to and sometimes through their pregnancies, and women who stop working altogether with their pregnancies are now returning, more than ever, to the workforce after their children are grown (Drobnič *et al.*, 1999). Economic uncertainties are also driving women, particularly those who are older, back to work (Dobrzynski, 2010; Drobnič *et al.*, 1999; Greenhouse, 2009).

There has been a host of past research examining negative biases against older (vs younger) people in the workplace. For instance, older workers are often perceived as poor performers (Posthuma and Campion, 2009), less productive (Henkens, 2005), less competent (Krings *et al.*, 2011), and less interpersonally skilled (Bal *et al.*, 2011). Additionally, older (vs younger) workers are perceived as more difficult to train (Kluge and Krings, 2008), resistant to change, and thus less adaptable and flexible (Chiu *et al.*, 2001; DeArmond *et al.*, 2006; Henkens, 2005; McGregor and Gray, 2002; Posthuma and Campion, 2009). This is in direct contrast to what organizations value, as employers want workers who are able to easily adapt to workplace changes (Fouad and Bynner, 2008). Belief in older workers' inability to adapt and other negative age-related stereotypes also has been shown to lead employers to be less likely to recommend them for training programs, promotion, and hiring (Chiu *et al.*, 2001; Rupp *et al.*, 2006; Taylor and Urwin, 2001).

There also has been a great deal of research demonstrating that women face more workplace discrimination than do men (e.g. see Cleveland *et al.*, 2005; Lyness and Heilman, 2006). For instance, in performance evaluation situations, women (vs men) receive more negative performance evaluations for similar performance, are less likely to be recommended for promotions, and make less money (Härtel *et al.*, 1999; Steinpreis *et al.*, 1999; Valian, 1998). In development training women get similar, quantitative amounts but less helpful developmental training (King *et al.*, 2010). Similarly, women (vs men) receive fewer instrumental outcomes from mentors than do men, which are critical for professional advancement (O'Brien *et al.*, 2008). Finally, in advancement to leadership positions, women also are denigrated, and recommended less than are men (Eagly and Karau, 2002).

Although research concerning age and gender biases in employment consistently shows negative perceptions of and treatment toward older workers and women, respectively, very little research has focussed on the intersection of these two demographic characteristics (Duncan and Loretto, 2004). Furthermore, recent research is pointing to the importance of looking at the intersectionality of influential demographic and other variables and their effects in the workplace (e.g. see Hosoda *et al.*, 2003; Ng and Feldman, 2010; Raver and Nishii, 2010). Thus, the current study seeks to answer the following:

RQ1. How are older (vs younger) male and female job applicants viewed, particularly when applying for entry-level positions?

There are a number of organizational and social reasons addressing why such research is important. First and as already mentioned, the workforce is changing and will continue to change (Bureau of Labor Statistics, 2011). Organizations want to maintain optimal productivity and performance through changing conditions; therefore, it is necessary to understand the best practices for dealing with employees during these times. Second, it is imperative for organizations to be able to not only document changes but also understand and respond to potentially emerging changes in employee biases. As the age of the workforce increases organizations need to understand how biases may negatively impact this population. Third, the economic downturn in America in recent years has led to greater financial instability and need for continued employment for a larger number of diverse individuals. A greater number of people from various backgrounds are unemployed or in transition between jobs involuntarily or in less than optimal circumstances due to economic hardships in America (Fouad and Bynner, 2008). This group includes individuals who are older and may have been laid off from previous jobs or have decided to re-enter the workforce after retirement (see Needleman, 2008). Understanding how biases impact job applicants from particular populations is important in helping to ensure that applicants do not receive disadvantages due to stereotyping and prejudices. This is directly relevant to researchers and practitioners in the fields of industrial/organizational psychology and human resources as they consider ways to ensure that selection procedures are fair and unbiased. Fourth and finally, research focussing on changing trends may offer challenges and opportunities for organizations. If new patterns of discrimination exist (or previous ones continue), organizations can position themselves to address these issues and prevent discrimination. Although challenging, this goal also offers an opportunity for organizations to expand and improve diversity within the workplace.

In this paper, we begin by briefly reviewing research on age discrimination and gender discrimination, respectively. We then consider the intersection of age and gender and discuss a theoretical framework for introducing two competing hypotheses to discuss how job applicants might be viewed. After such, we introduce a novel methodology in which we are able to fully standardize age by collecting photos of individuals across their lifespan. Finally, we present the results and discuss how the different hypotheses may contribute to explaining the effects of age and gender in employee selection.

Theoretical explanations for age and gender interactive effects

We propose two theoretical frameworks that can explain interactive effects of age and gender in selection processes. The first framework is social role theory (Eagly and Karau, 2002) and the second is double jeopardy hypothesis (Dowd and Bengston, 1978). We discuss each in turn as well as the way in which they shape our hypotheses.

Social role theory

Social role theory suggests that suggests that greater negativity is likely to occur toward people who possess attributes that are perceived as incongruent with the attributes necessary for occupying a particular social role (e.g. sex, racial, and ethnic minorities; Eagly, 1987). In addition to serving as a framework for understanding expectations about normative behaviors, social role theory suggests that the norms indicate "desired" behaviors from individuals based upon their status characteristics (Eagly, 1987; Heilman, 2012). For instance, women are expected to display communal

(i.e. be affectionate, supportive) behaviors, whereas men are expected to display agentic behaviors (Eagly, 1987). Similarly, older individuals are expected to engage in behaviors that are considered normal for those of an advanced age (e.g. they will leave the workforce and enjoy retirement). When individuals violate norms of ascribed behavior, they are denigrated for doing so. In line with social role theory, role congruity theory (Eagly and Karau, 2002) suggests that disconnects between the characteristics associated with an individual's characteristics (i.e. age, sex) and that of a role (i.e. job) may invoke bias. In the current research, we utilize social role theory as a framework for understanding the intersection of age and gender on a number of work-related perceptions.

Violation of gender norms. People make determinations about appropriate and inappropriate behavior for men and women based upon social norms (Eagly, 1987). In the workplace, social norms influence beliefs about jobs that individuals should occupy based upon their sex (Eagly, 1987). According to the role congruity theory of prejudice (Eagly and Karau, 2002; Heilman and Eagly, 2008), evaluators have expectations about what the ideal candidate should look and be like. If those expectations are violated, they evaluate the candidate negatively. Research examining expectations of men in the workforce suggest that they are expected to occupy positions of leadership and engage in agentic, dominant types of behavior (Eagly, 1987; Fiske *et al.*, 1999, 2002). Applying social role theory (Eagly, 1987), people might anticipate that older men (relative to women and to younger men) would be most likely to occupy these higher positions – they have had a lifetime career in which to establish and advance themselves and excel at agentic, leader-fostering behaviors. Thus, older men who are applying for entry-level positions might face a great deal of scrutiny because they are violating normative gender behavior. In line with role congruity theory, such a situation is incongruent and perceivers are likely to question what went wrong in their careers that these older men are back to square one (or never made it off square one) and are applying for such entry-level work when they would be expected to occupy higher-level jobs. In sum, "successful" older men clearly should not be looking for entry-level jobs at such an advanced point in their lives (see Nemko, 2010).

Women, however, may be expected (according to social role theory and role congruity theory), to hold occupations that are more communal and caretaking in nature (Eagly, 1987; Eagly and Karau, 2002, Eagly and Diekman, 2005). Even though many more women are in the workforce and even work through and after pregnancy, a substantial number of women continue to opt out of the entire employment cycle once they have children. Many of these women remain out of the workforce (or work part time) until their children turn 18, at which point they decide to re-enter the workforce. Thus, it may not be surprising for women who are older to go back into the workforce and apply for entry-level positions. Recent research refers to these departures from the work career for women as "offramps" and their return to careers post-raising children as "onramps" (Hewlett and Luce, 2005):

H1. When older men are applying for entry-level jobs they will be perceived less favorably than (a) younger men and (b) women of all ages.

Double jeopardy hypothesis. The double jeopardy hypothesis states that people belonging to multiple groups may fall victim to the greater negative consequences as a function of being a member of more than one stigmatized group (Dowd and

Bengston, 1978). The concept of "gendered ageism" suggests that older women face a unique form of bias. If this hypothesis is correct, we would anticipate that older women would receive the most negative treatment due to being both old and female. Some past evidence suggests that the double jeopardy impacts older women in employment. For instance, Duncan and Loretto (2004) found that women reported experiencing more age-related negative discrimination than did men. Other findings have shown greater disparities in pay between women and men as their age increases (Barnum *et al.*, 1995). Additional research on pay disparities have shown that the gender and age of an employee's immediate comparison group (supervisors, subordinates, and peers) impacts compensation such that pay is lower for employees whose referent group consists primarily of women (Ostroff and Atwater, 2003). Ostroff and Atwater (2003) found that although men tend to receive higher compensation overall, pay is lower if the referent groups is not only women but also younger or older than the "prime age group" for workers.

Taken together these finding suggest that if employers constantly compare older workers to their younger coworkers, age, and gender stereotypes may be more salient (Henkens, 2005) and can lead employers to rely more heavily on negative stereotypes when evaluating workers. Given the stereotypes and stigma concerning women and older workers, the double jeopardy hypothesis suggests that older female employees (relative to younger females or older males) will experience more stigmatization as a result of being both female and older.

Specific stereotypes about older workers

There are specific stereotypes about older individuals' abilities that contribute to the amount of stigmatization they receive in employment situations and the current study will assess and perform as effectively as younger individuals. A recent meta-analysis finds support for this general belief and reveals moderate negative effects between age and job-related outcomes such as selection, general evaluations, and advancement (Bal *et al.*, 2011). Two contexts in which stereotypes are particularly pervasive are in situations requiring technological skills and situations requiring physical activity. We briefly discuss research related to these stereotypes and explore the prevalence of these stereotypes.

When considering age and gender, men have stereotypically been expected to work and be the breadwinners for their families. Given such expectations and social role theory, women are not expected to achieve as much as do men and may not be seen as violating any such norms if they are older and searching for entry-level positions. In fact, if societal expectations deem that women are responsible for raising children (and 29 percent do so without working even part time, Bureau of Labor Statistics, 2009), older women seeking employment may be evaluated more favorably than older men seeking employment. Based on different expectations that exist for older men and women, role congruity and social role theories might actually anticipate that it is older men, and not older women, who would face the greatest disadvantage when applying for entry-level jobs.

Technology. Industries that require a high degree of technological knowledge may be particularly susceptible to age bias. Older individuals are perceived as slow (Britton and Thomas, 1973; Erber and Long, 2006), less motivated to keep up with trends in their profession (Chiu *et al.*, 2001), having decreased capacity (Marshall and Mueller, 2003), and less creative than younger individuals. Conversely, stereotypes about successful employees in high-tech organizations include perceptions that they are very

high in creativity, innovation, and risk taking (Brooke, 2009). In line with role congruity theory, older individuals are likely to be perceived as being less compatible for positions in high-tech companies than their younger counterparts. Diekman and Hirnisey (2007) provided support for this notion. Specifically, in a study examining hiring recommendations, older workers were less likely to be selected for jobs in dynamic organizational contexts (i.e. focussed on creativity and innovation) compared to jobs in stable contexts (i.e. focussed on maintaining the status quo). Diekman and Hirnisey (2007) provide a framework for understanding the extent to which age has an impact on employment-related perceptions. However, a limitation of the study is that they did not examine how gender interacts with age to influence perceptions.

Physical activity. People also hold biases concerning the health and physical ability of older individuals, and particularly believe them to be less active and physically slower. For instance, when primed with elderly stereotypes, participants subsequently walked down the hall slower than those who were not primed (Bargh *et al.*, 1996). Additionally, working slowly has been seen as a more stable and internal characteristic of older vs younger employees (Erber and Long, 2006). Age stereotypes are more likely to be influential when the applicant's age does not match the "correct age" of the ideal candidate (Posthuma and Campion, 2009). Based on role congruity theory, applying for a job that requires a high amount of activity is incongruent with stereotypes concerning older adults. When we introduce job type, double jeopardy is more important than violation of social norms:

H2. When individuals are applying for jobs requiring technical skills, there will be an interaction of age and gender such that (a) older women will be perceived less favorably than younger women, and (b) older women will be perceived less favorably than men of all ages.

H3. When individuals are applying for jobs requiring physical skills, there will be an interaction of age and gender such that (a) older women will be perceived less favorably than younger women and (b) younger men will be perceived more favorably than older men and women of all ages.

Method

Participants

A total of 320 people between the ages of 18-72 years old ($M = 35$, SD = 15) were recruited to participate in this study. The majority of participants were young adults, with 47 percent between the ages of 18 and 25, 26 percent between the ages of 26 and 49, and 27 percent between the ages of 50 and 72. This sample was comprised of 66 percent women ($n = 211$) and 34 percent men ($n = 108$); one person did not specify gender. Finally, the sample was somewhat diverse with an ethnic makeup of 51 percent ($n = 163$) White, 24 percent ($n = 77$) Asian, 12 percent ($n = 37$) Hispanic, 8 percent ($n = 25$) Black, 3 percent ($n = 11$) other ethnicity. In all, Seven people did not specify their ethnicity.

Procedure

Participants were contacted via e-mail and recruited to take part in an online applicant rating study in which they were asked to view six photographs of individuals of entry-level job applicants and make ratings of them. Once they accepted this invitation,

participants clicked on a link that randomly assigned them to view one of six versions of an online survey. Participants were instructed to assume the role of a human resources placement officer hiring entry-level employees, then shown photographs of job applicants, and finally asked to evaluate them. Participants were given limited information about the position other than that they were looking to hire a new wave of employees for a large company. Limited information was given in an attempt to examine potential biases based solely on age and gender independent of stereotypes about job types. Stereotypes about job tasks were tapped by asking participants to rate suitability for jobs requiring technical skills and physical ability. Upon viewing each photograph, participants recorded their immediate perceptions of the targets on a number of questions. After evaluating a job applicant, participants proceeded to the next photo and continued until they completed ratings for each of the six applicants depicted in photographs.

Materials

To create our standardized applicant stimuli, we adopted a novel approach to standardizing photos across age that we have used in previous research (see Hebl *et al.*, 2008). That is, we asked older White women and men to provide photos of their faces at the ages of 20, 40, and 60. All photos were frontal facing and depicted neutral to slightly positive facial expressions. These faces were morphed on to standardized bodies using Adobe Photoshop. Adobe Photoshop was used to change any dated hairstyles to ensure that all stimuli appeared to be individuals who are currently in their 20s, 40s, and 60s. The standardized bodies faced forward and donned business casual clothing. Applicants wore one of six different outfits. To control for extraneous variables such as attractiveness, each female face at every age was placed on each female body and each male face at each age was placed on each male body. As a result, we developed six versions of the survey, each depicting a total of three female applicants and three male applicants (one at each age for both genders). In each version, we varied the outfits for each age in an attempt to guard against any effects that may occur as a result of a particular pattern of combinations. We also varied the order of pictures in terms of age by gender combinations such that not all participants saw the same job applicants at the same age or in the same order. Participants viewed a total of six pictures. Once all six ratings were complete, participants were asked to provide demographic information.

Measures

A questionnaire was adapted from previous research (Hebl and Heatherton, 1998) to access perceptions of each target stimuli across the following job relevant dimensions: job aptitude, interpersonal skills, intelligence, hireability, trainability, adaptability, stability, and attractiveness. For each item, participants responded on seven-point Likert-type scales anchored by (1) = "not at all," (3) = "somewhat," and (7) = "very much." We planned to combine all items across each age by gender combination to create composite scores based on previous research. Prior to creating composites, we conducted a confirmatory factor analysis (CFA) to determine whether six composite scores were acceptable. Results revealed somewhat inadequate fit, RMSEA = 0.10 (90 percent CI = 0.09-0.10), SRMR = 0.06, CFI = 0.83, TLI = 0.82. An examination of factor loadings showed that attractiveness had the lowest loading for each factor, thus this item was removed and the CFA was repeated. Results indicated improved fit, RMSEA = 0.09 (90 percent CI = 0.087-0.091), SRMR = 0.05, CFI = 0.88, TLI = 0.87.

Some of the fit indices indicate good model fit (RMSEA and SRMR) and others do not (CFI and TLI), thus we conducted an exploratory factor analysis (EFA) to determine whether or not there were acceptable alternatives to the factors we expected based on previous research. The results from the EFA revealed six factors, each corresponding to an age by gender combination with all items loading at 0.85 or higher within its corresponding group. Thus, we retained the remaining items and we created a Total Positivity Composite for each age by gender combination (e.g. female at 20, male at 40). The Cronbach's αs ranged from 0.96 to 0.97 for each of the composites.

In addition to assessing a Total Positivity Composite, participants also rated their perceptions of how suitable the candidate would be for a technological vs non-technological position (from (1) = definitely not technological to (5) = definitely technological) and a physically sedentary vs demanding job (from (1) = definitely physically sedentary to (5) = definitely physically active). Finally, participants also completed basic demographic information, including their gender, age, and race.

Results

We examined the data using multiple regression analyses. To do this, we restructured the data such that every evaluation from each person was analyzed, resulting in a total sample size of $n = 1{,}920$. We used effect coding for target gender (1 = female, −1 = male) and target age (–1 = 20, 0 = 40, 1 = 60) in order to fully test all of our hypotheses. A CFA and an EFA of the Total Positivity Composite (without attractiveness) in the restructured data indicated that our composite was still acceptable; therefore, we retained the Total Positivity Composite. Although attractiveness was not included in the Total Positivity Composite, research has shown that there is a relation between age and attractiveness such that older adults are perceived as less attractive than younger adults (see Hebl *et al.*, 2008; Kite *et al.*, 2005). Thus, we controlled for attractiveness in our analyses. Table I presents that means, standard deviations, and intercorrelations of all of the measured variables in the study.

Table II presents the results for all independent variables and the three dependent variables. The regression model predicting Total Positivity evaluations revealed a significant age × gender interaction, $\beta = 0.06$, $p = 0.001$. Figure 1 depicts a graphic representation of the interaction using the cell means. As seen in Figure 1, older male applicants were evaluated less favorably than younger male applicants and female applicants of all ages. Thus, *H1* was supported.

Next, we examined the extent to which target gender and age biases influenced perceptions of suitability for technological jobs. As seen in Table II, results revealed both a gender main effect, $\beta = -0.32$, $p < 0.001$ indicating that female applicants were rated less suitable for technological positions than male applicants. An age main effect $\beta = -0.16$, $p < 0.001$ was also significant, indicating that as applicant age increased

	Mean	SD	1	2	3	4
1. Attractiveness	3.72	1.22	1			
2. Total positivity	4.65	0.88	0.55**	1		
3. Technology position	3.10	0.62	−0.11**	−0.19**	1	
4. Physical activity position	2.89	0.67	0.21**	0.11**	−0.15**	1

Notes: $n = 1{,}920$. ** $p < 0.001$

Table I.
Means, standard deviations, and intercorrelations of the primary study measures

perceptions of suitability for technological positions decreased. In addition, an age by gender interaction was revealed, $\beta = 0.07$, $p < 0.001$. As seen in Figure 2, older women do not appear to be perceived as less suitable than younger women; thus *H2a* is not supported. However, Figure 2 does show that male (vs female) applicants were rated as more suitable for technological positions, and that for both males and females, older (vs younger) applicants were viewed as significantly less suitable for technological positions. Thus, *H2b* was supported.

When examining stereotypes about physical activity, the results revealed a main effect for gender, $\beta = -0.26$, $p < 0.001$, indicating that female applicants were evaluated as less suitable for active jobs than male applicants. Additionally, a main effect for age was seen, $\beta = -0.13$, $p < 0.001$, indicating that as applicant age increased, perceptions of suitability for active jobs decreased. An age by gender interaction was not significant, $\beta = -0.04$, $p > 0.05$; thus, *H3* was not supported.

Discussion

The current study examined the interactive effects of age and gender in evaluating entry-level job applicants who are at one of three different age levels, young, middle aged, and older. Due to a violation of social norms, we anticipated that older men would be evaluated more harshly than both younger men and all female applicants. Indeed,

Table II.
Summary of regression effects for target attractiveness, target age, and target gender

Predictor variable	Dependent measure: Total positivity	Technological vs non-technological	Active vs sedentary
Attractiveness	0.54**	0.14**	0.24**
Gender	0.03	−0.32**	−0.26**
Age	0.01	−0.16**	−0.13**
Age × gender	0.06**	0.07**	−0.04
R^2	0.31	0.14	0.13
df	1,919	1,919	1,919

Notes: All coefficients are estimates of standardized regression weights. **$p < 0.001$

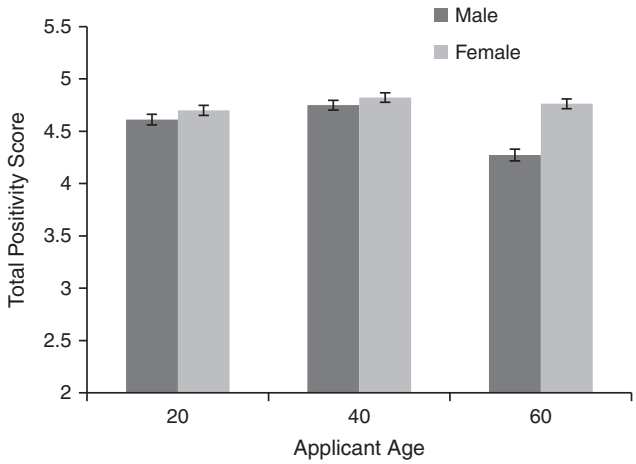

Figure 1.
The influence of applicant age and applicant gender on selection evaluations

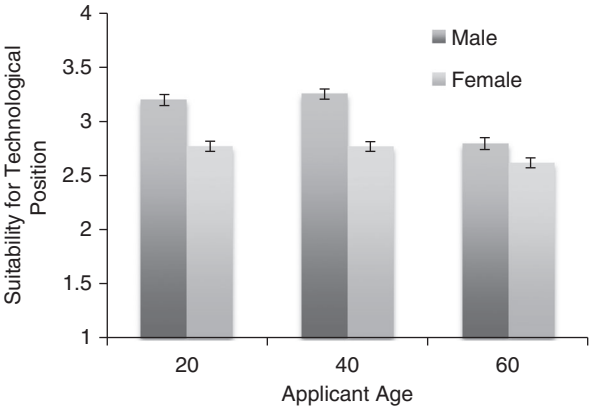

Figure 2.
Influence of applicant age and gender on evaluations of suitability for technological jobs

the results revealed that older men applying for entry-level positions face a disadvantage. When men are seeking employment at older ages, people may perceive this as a red flag and have more reservations about their potential and abilities because it violates societal gender normative behavior (see Eagly, 1987). Factoring in age when examining gender may help explain why the negative gender bias against female applicants was not seen in the current study.

Our interaction results are somewhat in line with meta-analytic work by Kite and colleagues (2005), which showed that older men received harsher evaluations when evaluating competence. In the current study, the measured Total Positivity Score included intellectual competence and interpersonal skills. Some research suggests that men lose agency when they age (Kite, 1996). When this is combined with stereotypes that women are more communal and interpersonally adept (Heilman and Eagly, 2008), it is not surprising that older men received the lowest evaluations and older women did not suffer denigration on total positivity. This theory of loss of agency in men along with the theory of violation of social gender normative behavior suggest that female applicants were evaluated more positively not because they are actually perceived more positively than male applicants but because of the negativity surrounding the male applicants' age and status when applying for entry-level employment. That is, it is not the case the female applicants necessarily received a boost in positivity. In fact, some evidence of bias against women was seen in our findings as women were viewed as less suitable than men for jobs requiring technology and jobs requiring activity. Thus, caution should be taken when interpreting the implications of these results. Future research should continue to examine gender biases against women in the workplace as they still do occur.

The findings show evidence of double jeopardy for older women seeking technology positions but not positions requiring high levels of physical activity. These findings show partial evidence confirming the double jeopardy theory. These findings are in line with research that suggests intersectionality is complicated because biases such as gender biases can function differently as a function of other target characteristics (e.g. see Hosoda *et al.*, 2003). Future research might ascertain why participants only disparaged older women in jobs requiring technology but not jobs requiring physical activity. Perhaps such results have something to do with older women generally being seen as healthier than older men since women outlive men.

The main effect results for positions requiring technological skills and physical activity illustrate that stereotypes concerning older individuals' technology skills and ability to move quickly or keep up in fast-paced settings contributes to negativity in applicant evaluations and hiring recommendations. These biases can result in negative consequences for older applicants who may be indeed be technologically and/or physically qualified for a job and may also result in negative consequences for organizations who lose out on quality potential due to biases in selection procedures.

Implications

Theoretical and future research implications. From a theoretical perspective, this study begins to address the need for more empirical research on aging stereotypes and biases in the workplace. This study helps to further what is known about the influence of having multiple stigmatizing characteristics. Although some research has suggested that multiple group membership leads to even greater disadvantages (Barnum *et al.*, 1995), the current study illustrates that this is not always the case. In fact, there are times when majority group members (or historically non-disadvantaged individuals) experience bias. Future research should explore other situations that lead to a reversal of bias from one group to another. Another theoretical impact of the current study is the methodology presented. The methodology used in the current study provides a standardized way to study age bias in the workplace. The use of pictures from the same individuals at ages 20, 40, and 60 allowed us to control for attractiveness across ages and ensure that the aging effects seen were indeed the result of age bias and not a contaminant of attraction. This methodology is novel and provides direction on ways to design studies examining age biases.

Practical implications. Organizations can use information gained from this study in training selection placement officers about avoiding biases and discrimination. This study provides insights on particular biases that hiring personnel should be aware of so that they can train individuals against using these biases. Organizations can also use information from this study to evaluate current selection procedures and develop policies to ensure that age and gender biases do not negatively influence selection.

Societal implications. This study also has implications for society as a whole. Over the past five to six years, the USA has suffered an economic downturn, which has scared many Americans. Many people have lost jobs and been unemployed for long periods of time. Given the state of the economy, many people are searching for any job even if they may be overqualified. Older Americans are also searching for or re-entering the workforce as things like retirement savings and social security are no longer as secure as they once were (Needleman, 2008). Age and gender biases against job applicants can be particularly detrimental at a time where there is uncertainty about the future. Thus, these findings highlight the biases that exist and should be used to help reduce such biases so that all individuals have a fair opportunity to enter the workforce.

Limitations. One limitation of the current study is that participants were only provided with demographic information in order to make decisions, which may have lead to a reliance on stereotypes about demographic characteristics. However, studies have revealed that even when job applicants have similar qualifications and this information is known, negativity and discrimination on the basis of demographic information still persists in selection decisions (Bertrand and Mullainathan, 2004). A second limitation of this study is that limited information about participants was collected. Specifically, information about participants' employment experience and

experience making hiring decisions was not collected. However, the sample was diverse and it is likely that many of the participants did have varying employment experience. We believe that concern about participant employment experience stems from the question about whether people can accurately play the role of a human resources placement officer. Research findings in both the lab and the field tend to triangulate in showing that people generally can (e.g. Dobbins *et al.*, 2006). Future research should examine the effect of employment experience and diversity training experience in using biases in hiring decision making.

Conclusion

The results of the current study support the notion that biases are still present and can have very negative consequences. This study goes beyond previous research by examining multiple group membership and specifically focussing on how gender interacts with age to impact job applicants. This is certainly a step in the right direction, and more research in this area should continue to be done. Posthuma and Campion (2009) outline 14 areas in which future research concerning age stereotypes and biases in employment is needed. We echo this call to action and suggest that researchers follow the recommendations we outlined to continue exploring and addressing questions regarding the intersection between age and gender in employment.

References

Bal, A.C., Reiss, A.E.B., Rudolph, C.W. and Baltes, B.B. (2011), "Examining positive and negative perceptions of older workers: a meta-analysis", *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, Vol. 66B No. 6, pp. 687-698.

Bargh, J.A., Chen, M. and Burrows, L. (1996), "Automaticity of social behavior: direct effects of trait construct and stereotype activation on action", *Journal of Personality and Social Psychology*, Vol. 71 No. 2, pp. 230-244.

Barnum, P., Liden, R.C. and Ditomaso, N. (1995), "Double jeopardy for women and minorities: pay differences with age", *Academy of Management Journal*, Vol. 38 No. 3, pp. 863-880.

Bertrand, M. and Mullainathan, S. (2004), "Are Emily and Greg more employable than Lakisha and Jamal? A field experiment on labor market discrimination", *The American Economic Review*, Vol. 94 No. 4, pp. 991-1013.

Britton, J. and Thomas, K. (1973), "Age and sex as employment variables: views of employment service interviewers", *Journal of Employment Counseling*, Vol. 10 No. 4, pp. 180-186.

Brooke, L. (2009), "Prolonging the careers of older information technology workers: continuity, exit or retirement transitions?", *Aging & Society*, Vol. 29 No. 2, pp. 237-256.

Bureau of Labor Statistics (2009), "Labor force statistics from the current population survey", *Women in the Labor Force: A Databook (2009 Edition)*, Bureau of Labor Statistics, Washington, DC, available at: www.bls.gov/cps/wlf-intro-2009.htm (accessed March 28, 2012).

Bureau of Labor Statistics (2011), "Women at work", available at: www.bls.gov/spotlight/2011/women/ (accessed March 28, 2012).

Catalyst (2011), *US Women in Business*, available at: www.catalyst.org/publication/132/us-women-in-business (accessed March 28, 2012).

Chiu, W.C.K., Chan, A.W., Snape, E. and Redman, T. (2001), "Age stereotypes and discriminatory attitudes towards older workers: an East-West comparison", *Human Relations*, Vol. 54 No. 5, pp. 629-661.

Cleveland, J., Vescio, T.K. and Barnes-Farrell, J. (2005), "Gender discrimination in organizations", in Dipboye, R.L. and Collela, A. (Eds), *Discrimination at Work: The Psychological and Organizational Bases*, Lawrence Erlbaum Associates Inc., Mahwah, NJ, pp. 145-172.

DeArmond, S., Tye, M., Chen, P.Y., Krauss, A., Rogers, D.A. and Sintek, E. (2006), "Age and gender stereotypes: new challenges in a changing workplace and workforce", *Journal of Applied Social Psychology*, Vol. 36 No. 9, pp. 2184-2214.

Diekman, A.B. and Hirnisey, L. (2007), "The effect of context on the silver ceiling: a role congruity perspective on prejudiced responses", *Personality and Social Psychology Bulletin*, Vol. 33 No. 10, pp. 1353-1366.

Dobbins, G.H., Lane, I.M. and Steiner, D.D. (2006), "A note on the role of laboratory methodologies in applied behavioral research: don't throw out the baby with the bath water", *Journal of Organizational Behavior*, Vol. 9 No. 3, pp. 281-286.

Dowd, J.J. and Bengston, V.L. (1978), "Aging in minority populations an examination of the double jeopardy hypothesis", *The Journal of Gerontology*, Vol. 33 No. 3, pp. 427-436.

Dobrzynski, J.H. (2010), "Why older women are going back to work", *Forbes Woman*, available at: www.forbes.com/2010/03/16/retirement-age-job-search-forbes-woman-net-worth-changing-careers.html (accessed March 29, 2012).

Drobnič, S., Blossfeld, H. and Rohwer, G. (1999), "Dynamics of women's employment patterns over the family life course: a comparison of the United States and Germany", *Journal of Marriage and Family*, Vol. 61 No. 1, pp. 133-146.

Duncan, C. and Loretto, W. (2004), "Never the right age? Gender and age-based discrimination in employment", *Gender, Work, and Organization*, Vol. 11 No. 1, pp. 95-115.

Eagly, A.H. (1987), *Sex Differences in Social Behavior: A Social-Role Interpretation*, Earlbaum, Hillsdale, NJ.

Eagly, A.H. and Diekman, A.B. (2005), "What is the problem? Prejudice as an attitude-in-context", in Dovidio, J.F., Glick, P. and Rudman, L.A. (Eds), *On the Nature of Prejudice: Fifty Years After Allport*, Blackwell Publishing, Malden, MA, pp. 19-35.

Eagly, A.H. and Karau, S.J. (2002), "Role congruity theory of prejudice toward female leaders", *Psychological Review*, Vol. 109 No. 3, pp. 573-598.

Erber, J.T. and Long, B.A. (2006), "Perceptions of forgetful and slow employees: does age matter?", *Journal of Gerontology: Psychological Sciences*, Vol. 61B No. 6, pp. 333-339.

Fiske, S.T., Cuddy, A., Glick, P. and Xu, J. (2002), "A model of (often mixed) stereotype content: competence and warmth respectively follow from perceived status and competition", *Journal of Personality and Social Psychology*, Vol. 82 No. 6, pp. 878-902.

Fiske, S.T., Xu, J., Cuddy, A.J.C. and Glick, P. (1999), "(Dis)respecting vs (dis)liking: status and interdependence predict ambivalent stereotypes of competence and warmth", *Journal of Social Issues*, Vol. 55 No. 3, pp. 473-489.

Fouad, N.A. and Bynner, J. (2008), "Work transitions", *American Psychologist*, Vol. 63 No. 4, pp. 241-251.

Greenhouse, S. (2009), "Recession drives women back to the work force", The New York Times, 18 September, p. B1.

Härtel, C.E.J., Douthitt, S.S., Härtel, G. and Douthitt, S.Y. (1999), "Equally qualified but unequally perceived: openness to perceived dissimilarity as a predictor of race and sex discrimination in performance judgments", *Human Resource Development Quarterly*, Vol. 10 No. 1, pp. 79-89.

Hebl, M. and Heatherton, T.H. (1998), "The stigma of obesity in women: the difference is Black and White", *Personality and Social Psychology Bulletin*, Vol. 24 No. 4, pp. 417-426.

Hebl, M.R., Ruggs, E.N., Singletary, S.L. and Beal, D.J. (2008), "Perceptions of obesity across the lifespan", *Obesity*, Vol. 16 No. S2, pp. S46-S52.

Heilman, M.E. (2012), "Gender stereotypes and workplace bias", *Research in Organizational Behavior*, Vol. 32, pp. 113-135.

Heilman, M.E. and Eagly, A.H. (2008), "Gender stereotypes are alive, well, and busy producing workplace discrimination", *Industrial and Organizational Psychology: Perspectives on Science and Practice*, Vol. 1 No. 4, pp. 393-398.

Henkens, C.J.I.M. (2005), "Stereotyping older workers and retirement: the managers' point of view", *Canadian Journal on Aging*, Vol. 24 No. 4, pp. 353-366.

Hewlett, S.A. and Luce, C.B. (2005), "Off-ramps and on-ramps. Keeping talented women on the road to success", *Harvard Business Review*, Vol. 83 No. 3, pp. 43-54.

Hosoda, M., Stone, D.L. and Stone-Romero, E.F. (2003), "The interactive effects of race, gender, and job type on job suitability ratings and selection decisions", *Journal of Applied Social Psychology*, Vol. 33 No. 4, pp. 145-178.

King, E.B., Botsford, W., Hebl, M.R., Kazama, S., Dawson, J.F. and Perkins, A. (2010), "Benevolent sexism at work: gender differences in the distribution of challenging developmental experiences", *Journal of Management*, Vol. 36 No. 2, pp. 482-510.

Kite, M.E. (1996), "Age, gender, and occupational label", *Psychology of Women Quarterly*, Vol. 20 No. 3, pp. 361-374.

Kite, M.E., Stockdale, G.D., Whitley, B.E. and Johnson, B.T. (2005), "Attitudes toward younger and older adults: an updated meta-analytic review", *Journal of Social Issues*, Vol. 61 No. 2, pp. 241-266.

Kluge, A. and Krings, F. (2008), "Attitudes toward older workers and human resource practices", *Swiss Journal of Psychology*, Vol. 67 No. 1, pp. 61-64.

Krings, F., Sczesny, S. and Kluge, A. (2011), "Stereotypical inferences as mediators of age discrimination: the role of competence and warmth", *British Journal of Management*, Vol. 22 No. 2, pp. 187-201.

Lyness, K.S. and Heilman, M.E. (2006), "When fit is fundamental: performance evaluations and promotions of upper-level female and male managers", *Journal of Applied Psychology*, Vol. 91 No. 4, pp. 777-785.

McGregor, J. and Gray, L. (2002), "Stereotypes and older workers: the New Zealand experience", *Social Policy Journal of New Zealand*, Vol. 18 No. 18, pp. 163-177.

Marshall, V.M. and Mueller, M. (2003), "Theoretical roots of the life-course perspective", in Heinz, W.R. and Marshall, V.M. (Eds), *Social Dynamics of the Life Course: Transitions, Institutions and Interrelations*, Aldine de Gruyter, Hawthorne, NY, pp. 3-32.

Needleman, S.E. (2008), "Easing back to work after you've retired", *The Wall Street Journal*, http://online.wsj.com/article/SB122514911709574109.html (accessed March 10, 2013).

Nemko, M. (2010), "Are White males getting shortchanged?", available at: www.martynemko.com/articles/are-white-males-getting-shortchanged_id1229 (accessed March 28, 2012).

Ng, T.W.H. and Feldman, D. (2010), "The relationships of age with job attitudes: a meta-analysis", *Personnel Psychology*, Vol. 63 No. 4, pp. 677-718.

O'Brien, K.E., Biga, A., Kessler, S.R. and Allen, T.D. (2008), "A meta-analytic investigation of gender differences in mentoring", *Journal of Management*, Vol. 36 No. 2, pp. 537-554.

Ostroff, C. and Atwater, L.E. (2003), "Does whom you work with matter? Effects of referent group gender and age composition on managers' compensation", *Journal of Applied Psychology*, Vol. 88 No. 4, pp. 725-740.

Posthuma, R.A. and Campion, M.A. (2009), "Age stereotypes in the workplace: common stereotypes, moderators, and future research directions", *Journal of Management*, Vol. 35 No. 1, pp. 158-188.

Raver, J.L. and Nishii, L.H. (2010), "Once, twice, or three times as harmful? Ethnic harassment, gender", *Journal of Applied Psychology*, Vol. 95 No. 2, pp. 236-254.

Rupp, D.E., Vodanovich, S.J. and Crede, M. (2006), "Age bias in the workplace: the impact of ageism and causal attributions", *Journal of Applied Social Psychology*, Vol. 36 No. 6, pp. 1337-1364 doi: 10.1111/j.0021-9029.2006.00062.x.

Steinpreis, R.E., Anders, K.A. and Ritzke, D. (1999), "The impact of gender on the review of the curricula vitae of job candidates and tenure candidates: a national empirical study", *Sex Roles*, Vol. 41 Nos 7-8, pp. 509-528.

Taylor, P. and Urwin, P. (2001), "Age and participation in vocational education and training", *Work, Employment, & Society*, Vol. 15 No. 4, pp. 763-779.

Toossi, M. (2002), "A century of change: the US labor force, 1950-2050", *Monthly Labor Review*, pp. 15-28.

Toossi, M. (2009), "Labor force projections to 2018: older workers staying more active", *Monthly Labor Review*, pp. 30-51.

Valian, V. (1998), *Why So Slow? The Advancement of Women*, MIT Press, Cambridge, MA.

Further reading

DeBell, C. (2006), "What all applied psychologists should know about work", *Professional Psychology: Research and Practice*, Vol. 37 No. 4, pp. 325-333.

Erber, J.T. and Danker, D.C. (1995), "Forgetting in the workplace: attributions and recommendations for young and older employees", *Psychology and Aging*, Vol. 10 No. 4, pp. 565-569.

Hebl, M.R. and Mannix, L.M. (2003), "The weight of obesity in evaluating others: a mere proximity effect", *Personality and Social Psychology Bulletin*, Vol. 29 No. 1, pp. 28-38.

Hoyt, C.L. (2012), "Gender bias in employment contexts: a closer examination of the role incongruity principle", *Journal of Experimental Social Psychology*, Vol. 48 No. 1, pp. 86-96.

King, E.B., Knight, J.L. and Hebl, M.R. (2010), "The influence of economic conditions on aspects of stigmatization", *Journal of Social Issues*, Vol. 66 No. 3, pp. 446-460.

Paludi, M.A. and Bauer, W.D. (1983), "Goldberg revisited: what's in an author's name?", *Sex Roles*, Vol. 9 No. 3, pp. 387-390.

Sczesny, S., Spreemann, S. and Stahlberg, D. (2006), "Masculine = competent? Physical appearance and sex as sources of gender-stereotypic attributions", *Swiss Journal of Psychology*, Vol. 65 No. 1, pp. 15-23.

Swim, J.K., Borgida, E., Maruyama, G. and Myers, D.G. (1989), "Joan McKay vs John McKay: do gender stereotypes bias evaluations?", *Psychological Bulletin*, Vol. 105 No. 3, pp. 409-429.

Winquist, L.A., Mohr, C.D. and Kenny, D.A. (1998), "The female positivity effect in the perception of others", *Journal of Research in Personality*, Vol. 32 No. 3, pp. 370-388.

About the authors

Dr Enrica N. Ruggs is an Assistant Professor of Psychology at the University of North Carolina at Charlotte. She received her received her Doctorate in Psychology at Rice University. Her research focusses on identifying and remediating discrimination in the workplace.

Dr Michelle R. Hebl is an Associate Professor in the Department of Psychology and the Jesse H. Jones Graduate School of Management at the Rice University. She received her Doctorate

in Psychology from Dartmouth. As an Applied Social Psychologist, her research focusses on understanding manifestations of discrimination in interactions between stigmatized and non-stigmatized individuals. Dr Michelle R. Hebl is the corresponding author and can be contacted at: hebl@rice.edu

Dr Sarah Singletary Walker is an Assistant Professor of Management at the University of Houston-Downtown. She received her Doctorate in Psychology at Rice University. Dr Walker's research focusses on strategies to reduce workplace prejudice and discrimination.

Naomi Fa-Kaji is an Undergraduate Student majoring in Psychology and Sociology at the Rice University. Upon completion of her Bachelor's Degrees, Naomi plans to attend graduate school and conduct research focussing on identifying methods to combat social injustices.