FlashReport

Beyond the double-jeopardy hypothesis: Assessing emotion on the faces of multiply-categorizable targets of prejudice

Sonia K. Kang *, Alison L. Chasteen

Department of Psychology, University of Toronto, Ontario, Canada M5S 3G3

A R T I C L E   I N F O

A B S T R A C T

Prior research has shown that race influences perceptions of facial expressions, with hostility detected earlier on young male Black than White faces. This study examined whether the interplay of race and age would moderate perceptions of hostility by having participants evaluate facial expressions of multiply-categorizable targets. Using a facial emotion change-detection task, we assessed evaluations of onset/offset of anger and happiness on faces of young and old Black and White men. Significant age by race interactions were observed: while participants perceived anger as lasting longer and appearing sooner on old compared to young White faces, this relationship was reversed for Black faces, with participants perceiving anger lasting longer and appearing sooner on young compared to old Black faces. Similar results were found for perceived happiness. These results suggest that perception during cross-categorization may be more complex than the simple additive function proposed by the double-jeopardy hypothesis, such that co-activation of other stereotypes may sometimes confer a protective benefit against bias.

© 2009 Elsevier Inc. All rights reserved.

The negative impact of stereotypes on perceptions of devalued group members has been well-documented in the person-perception literature (e.g. Duncan, 1976; Sagar & Schofield, 1980). Many stereotypes are based on age, racial, or gender groups, and much research has explored the consequences of stereotyping for members of these groups. In this study, we examined how individuals perceive others who belong to more than one stereotyped group. More specifically, we were interested in how perception proceeds when multiple stereotype sets are activated simultaneously.

To investigate how competing group stereotypes influence perceptions of multiply-categorizable individuals, we examined responses to targets who were either Black, elderly, or both. Compared to White men, Black men are stereotyped as aggressive and hostile (Devine, 1989). Contrastingly, older adults are stereotyped as forgetful, frail, incompetent, or rude. Despite these negative perceptions, older adults are judged to be warm and are relatively well-liked (Cuddy, Norton, & Fiske, 2005; Kite, Stockdale, Whitley, & Johnson, 2005). Thus, these two group stereotypes differ markedly: one suggests hostility and aggression, the other frailty and warmth. In this study, we examined stereotypes associated with Black and elderly individuals to more fully understand the effects of multiple categorization.

Given these opposing stereotypes, how are older Black men evaluated? Previous research on multiple categorization has worked within the "double-jeopardy hypothesis" framework (e.g. Beale, 1970; Blakemore & Boneham, 1994), suggesting that individuals belonging to two stereotyped groups endure consequences of both stereotypes simultaneously. Although theoretically reasonable, empirical evidence for an age/ethnicity double-jeopardy hypothesis is lacking (e.g. Dowd & Bengston, 1978; Ferraro, 1987). Further, consequences for perceived discrimination among Black and Latino women also appears to be inconsistent with double-jeopardy (Levin, Sinclair, Veniegas, & Taylor, 2002). We suggest instead that cross-categorization may be more complex than a simple additive function. For example, stereotypes might blend together to create a new, unique stereotype, as suggested by the subtyping model (Weber & Crocker, 1983), or one stereotype may completely inhibit the other, preventing multiple categorization (Macrae, Bodenhausen, & Milne, 1995). Alternatively, we propose that the effect may involve a *selective* inhibition of conflicting stereotype elements. For example, older Black men may benefit from activation of an elderly stereotype because it directly contradicts elements of the hostile Black stereotype. Particularly, the "frail" and "kind" aspects of elderly stereotypes may selectively inhibit activation of the "hostile" and "aggressive" components of the Black stereotype.

To explore these ideas, we adapted the procedure used by Hugenberg and Bodenhausen (2003) in their examination of perceived facial threat in young Black and White men. In their study, White participants watched movies in which the target's facial

* Corresponding author. Address: Department of Psychology, University of Toronto, 100 St. George Street, Toronto, Ontario, Canada M5S 3G3. Fax: +1 416 978 4811.
E-mail address: sonia.kang@utoronto.ca (S.K. Kang).

expression changed from angry-to-happy or from happy-to-angry and indicated when they perceived a change in the target's emotion. Results revealed that participants high in implicit racial prejudice perceived anger appearing sooner and disappearing later on Black faces, suggesting a bias among these individuals to perceive anger on Black faces.

We modified Hugenberg and Bodenhausen's (2003) procedure in two ways. First, we added two more targets, yielding a total of four "types": young Black, old Black, young White, and old White. Second, we added four additional emotional transitions. Hugenberg and Bodenhausen (2003) concluded that participants high in implicit racial prejudice are biased to perceive threatening affect on Black faces; it might also be the case that they are biased against perceiving positive affect (e.g. happiness) on Black faces. Examining positive and negative emotions may be important, especially in the case of the elderly stereotype, which contains positive and negative elements. To this end, we examined participants' judgments of six emotional transitions, which included some neutral start/endpoints to allow for a more naturalistic examination of emotion.

As participants watched the emotional transition movies, they were instructed to indicate when the first emotion was no longer present. As in Hugenberg and Bodenhausen (2003), we expected that participants would see anger appear sooner and linger longer and, similarly, see happiness appear later and disappear sooner on a young Black face compared to a young White face.

Our hypotheses for perceptions of young compared to old faces within each racial group were more exploratory in nature. For White faces, we were reasonably certain that participants would see anger appear sooner and linger longer and happiness appear later and disappear sooner on an old compared to a young face, in line with research showing biases against White older adults. Although the elderly stereotype is mixed, people tend to have more negative than positive trait associations for older adults (Hummert, Shaner, & Garstka, 1995) and evaluate the category "old" more negatively than the category "young" (e.g. Perdue & Gurtman, 1990).

For Black faces, four competing hypotheses existed. The double-jeopardy hypothesis predicts that combining Black and elderly stereotypes should result in more bias against elderly Black men—participants should see anger last longer and appear sooner and happiness appear later and disappear sooner from an old compared to a young Black face. Thus, the double-jeopardy hypothesis predicts two main effects, increased bias for Black relative to White faces, and increased bias for old relative to young faces. Because of the additive consequences of Black and elderly stereotypes, older Black faces should be evaluated most negatively.

In contrast, a global inhibition hypothesis predicts that perception will be in line with whichever stereotype is able to gain "mental dominance" (Macrae et al., 1995). If Black stereotypes override elderly stereotypes, participants should perceive the old Black face similarly to the young Black face; results should reveal a single main effect of race, and no interaction with age. If elderly stereotypes override Black stereotypes, participants should perceive the old Black face similarly to the old White face, revealing only a single main effect of age.

Finally, the subtyping and selective inhibition hypotheses both predict an interaction effect. If the elderly stereotype selectively inhibits the conflicting elements of the Black stereotype (e.g. "frail and kind" vs. "hostile and aggressive"), participants should show biased perceptions of facial emotion on young but not old Black faces. Specifically, participants should see anger last longer and appear sooner and happiness appear later and disappear sooner from a young Black face than an old Black face. Similar results are predicted by a subtyping hypothesis. Older Black men may represent a positively regarded sub-type of Black men—exemplars

like Bill Cosby readily come to mind—and perceptions of these men would therefore be more positive than perceptions of their younger counterparts.

Method

Participants and design

Participants were 48 non-Black introductory psychology students (26 females; Age: range = 17–26, *M* = 19.2, *SD* = 2.0) from the University of Toronto. Participants were from a variety of ethnic backgrounds, reflecting the diversity of Toronto (47.9% European, 31.3% East/Southeast Asian, 12.5% South Asian, 4.2% Middle Eastern, 4.2% Aboriginal).

Materials and procedure

Following Hugenberg and Bodenhausen (2003), we used Poser 7™ three-dimensional animation software to create facial expression animations. Four base faces were created, two young men and two old men. The skin tone, eye color, and hair color were manipulated to create Black and White exemplars of each face, yielding eight base faces, two each of the four possible combinations: young Black, young White, old Black, old White. Pretesting confirmed that young targets were perceived as more youthful and, in line with stereotypes linking youth and beauty (e.g. Kite et al., 2005), more attractive than older targets. There were no differences in attractiveness according to race.

Using these eight base faces, we created movies in which each target's facial expression changed over time along six different emotional transitions: happy-to-angry, angry-to-happy, angry-to-neutral, neutral-to-angry, happy-to-neutral, and neutral-to-happy. Thus, 48 movies (six emotional transitions for each of eight base faces) were created in all. Each movie was 17 s in duration and 120 frames in length. Example frames from the angry-to-happy animations are displayed in Fig. 1.

Participants were invited to participate in an experiment examining perceptions of facial expressions. Participants were asked to watch the movies described above, and to press the space bar when they judged the first emotion to have completely disappeared from the face. The actual emotions of interest were not specified (i.e. participants were not told that the facial expression would change from happy-to-angry, for example). Participants completed two practice trials before completing the randomized experimental set of 48 movies. Finally, participants completed a demographics questionnaire and were fully debriefed.

Results

The dependent measure of interest was the mean time at which participants indicated that the first emotion had completely disappeared from the face. We conducted six two-way repeated measures analyses of variance (ANOVAs) with target age (young, old) and race (White, Black) entered as within-subjects factors. Paired-samples *t*-tests were used to test significant effects. Mean response latencies for the facial emotion change-detection task by target age and race for the six emotional transitions are displayed in Fig. 2.

Transition type 1: happy-to-angry

Analyses revealed a significant main effect of target race, $F(1, 47) = 11.00$, $p = .003$, $\eta_{\mathrm{p}}^2 = 0.19$, which was qualified by a two-way interaction between target age and race, $F(1, 47) = 43.03$, $p = .001$, $\eta_{\mathrm{p}}^2 = 0.48$. When observing White targets, partici-
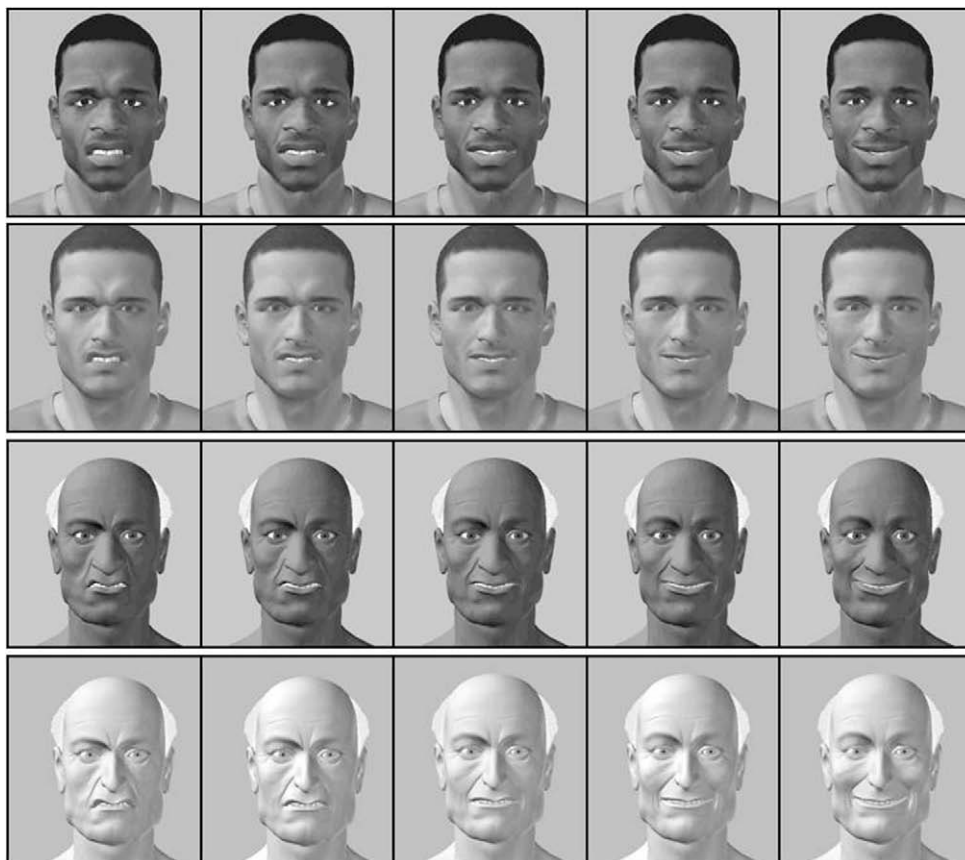
Fig. 1. Five frames from angry-to-happy movies for the four target types: young Black, young White, old Black, old White. The original stimulus movies were presented in color.

pants judged anger as appearing sooner on an old (M = 7.55 s, SD = 3.77 s) compared to a young face (M = 8.86 s, SD = 3.62 s), $t(47)$ = 5.55, p = .001, d = 0.35. This pattern was reversed for Black targets, such that participants saw anger appear sooner on a young (M = 8.26 s, SD = 3.92 s) compared to an old face (M = 9.85 s, SD = 4.84 s), $t(47)$ = −4.70, p = .001, d = −0.36.

Transition type 2: angry-to-happy

For this transition, analyses revealed a two-way interaction between target age and race, $F(1, 47)$ = 38.60, p = .001, η_p^2 = 0.45. When observing White targets, participants judged anger as lasting longer on an old (M = 10.41 s, SD = 4.68 s) compared to a young face (M = 8.86 s, SD = 4.35 s), $t(47)$ = −4.18, p = .001, d = −0.34. Again, this pattern was reversed for Black targets, such that participants saw anger last longer on a young (M = 9.88 s, SD = 4.29 s) compared to an old face (M = 8.47 s, SD = 4.98 s), $t(47)$ = 3.92, p = .001, d = 0.30.

Transition type 3: angry-to-neutral

Analyses revealed a two-way interaction between target age and race, $F(1, 47)$ = 21.31, p = .001, η_p^2 = 0.31. Participants judged anger as lasting longer on an old White face (M = 10.71 s, SD = 3.14 s) than on a young White face (M = 9.38 s, SD = 3.31 s), $t(47)$ = −4.83, p = .001, d = −0.41. The opposite pattern was found for Black targets, such that participants saw anger lasting longer on a young face (M = 10.58 s, SD = 3.80 s) than on an old face (M = 9.70 s, SD = 3.68 s), $t(47)$ = 2.54, p = .016, d = 0.24.

Transition type 4: neutral-to-angry

Analyses revealed significant main effects of target race, $F(1, 47)$ = 8.46, p = .008, η_p^2 = 0.15, and target age, $F(1, 47)$ = 53.37, p = .001, η_p^2 = 0.53, which were qualified by a two-way interaction between target age and race, $F(1, 47)$ = 25.16, p = .001, η_p^2 = 0.35. When observing White targets, participants judged anger as appearing sooner on an old face (M = 7.23 s, SD = 3.48 s) than on a young face (M = 9.45 s, SD = 4.05 s), $t(47)$ = 9.45, p = .001, d = 0.58. For Black targets, the opposite pattern, such that participants saw anger appear sooner on a young face (M = 8.66 s, SD = 3.42 s) than on an old face (M = 9.13 s, SD = 3.84 s), was marginally significant, $t(47)$ = −1.74, p = .085, d = −0.13.

Transition type 5: happy-to-neutral

Analyses revealed a two-way interaction between target age and target race, $F(1, 47)$ = 13.57, p = .001, η_p^2 = 0.22. When observing White targets, participants judged happiness as lasting longer on a young face (M = 8.86 s, SD = 3.33 s) than on an old face (M = 8.17 s, SD = 3.77 s), $t(47)$ = 2.88, p = .008, d = 0.19. The opposite pattern was found for Black targets, such that participants saw happiness lasting longer on an old (M = 9.11 s, SD = 3.10 s) compared to a young face (M = 8.43 s, SD = 3.40 s), $t(47)$ = −2.25, p = .030, d = 0.21.

Transition type 6: neutral-to-happy

For this transition, analyses revealed a two-way interaction between target age and target race, $F(1, 47)$ = 14.76, p = .001,
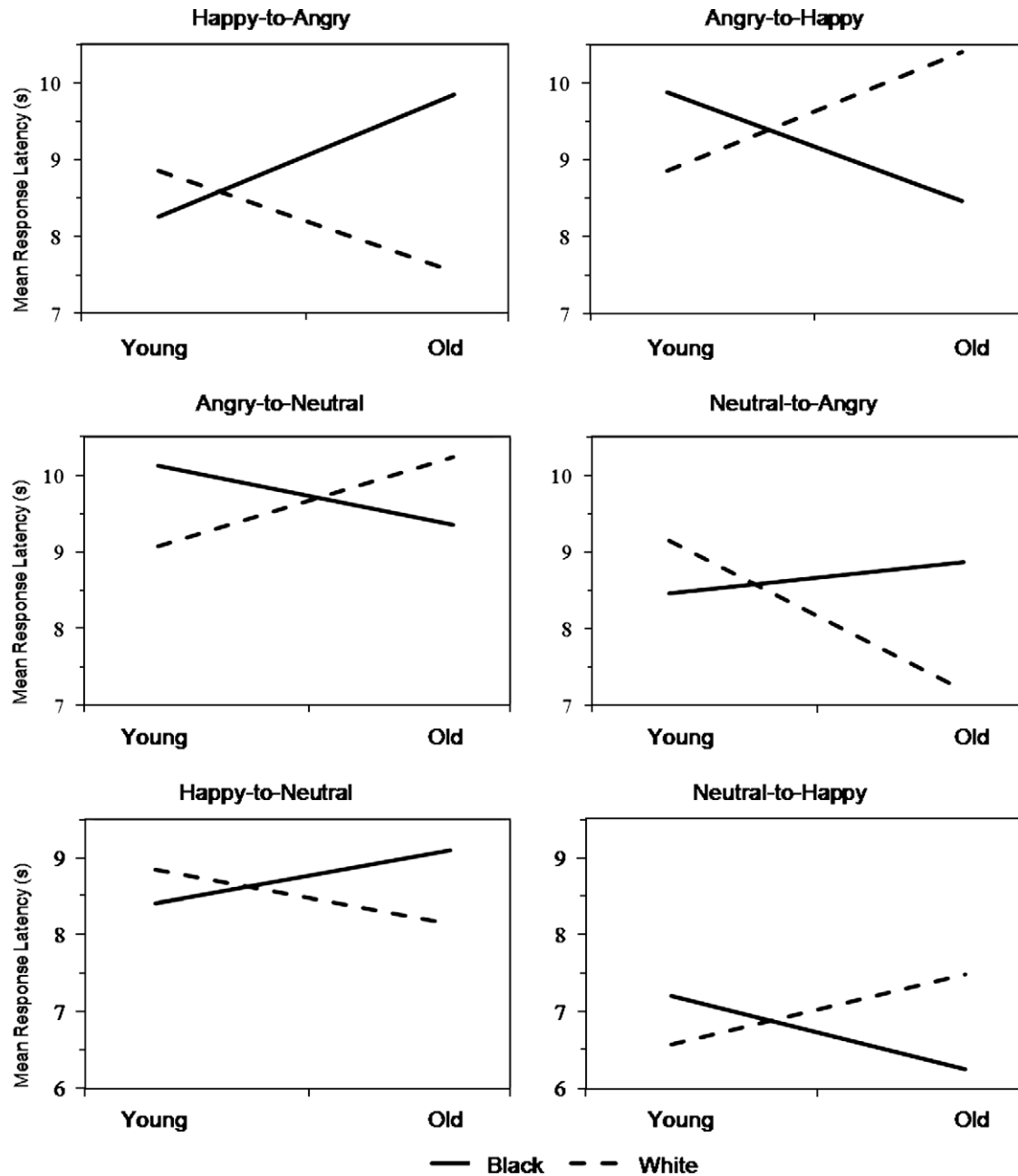
Fig. 2. Mean response latencies for the facial emotion change-detection task by target age and race for each of the six emotional transitions.

$\eta_p^2 = 0.24$. When observing White targets, participants judged happiness as appearing sooner on a young face ($M = 6.60$ s, $SD = 4.62$ s) than on an old face ($M = 7.51$ s, $SD = 4.10$ s), $t(47) = -2.76$, $p = .008$, $d = -0.21$. The opposite pattern was found for Black targets, such that participants saw happiness appear sooner on an old face ($M = 6.28$ s, $SD = 4.19$ s) than on a young face ($M = 7.23$ s, $SD = 3.71$ s), $t(47) = 3.53$, $p = .001$, $d = 0.24$.

Discussion

This study examined perceptions of emotion on faces of multiply-categorizable individuals. We specifically examined the co-activation of age-related and race-related stereotypes for young and old Black and White men. Across six transitions, we found evidence for biased perceptions of both negative and positive emotions. For Black faces, anger is seen to linger longer and appear sooner on a young compared to an old face; the reverse is true for White faces. When examining happiness, we found that for Black faces, happiness is seen to disappear sooner and appear later on a young compared to an old face and, once again, the reverse is true for White faces. To our knowledge, these results are the first to show bias in perceptions of both positive and negative emotions. These findings also lend further support to research showing that stereotypes and expectations have the potential to affect low-level cognitive processes including face processing (e.g. Eberhardt, Dasgupta, & Banaszynski, 2003; Hugenberg & Bodenhausen, 2003; Inzlicht, Kaiser, & Major, 2008; Macrae, Milne, & Bodenhausen, 1994).

In this study, we looked beyond the double-jeopardy hypothesis to determine if the combination of elderly and Black stereotypes results in something more complex than a simple additive function. Indeed, our results suggest that the combination of these

two stereotypes is in fact beneficial to older Black men, with activation of the elderly stereotype conferring something of a buffer against the Black-hostility stereotype, either through selective inhibition or subtyping. We believe that this result is in part due to differential activation of distinct components of the older adult stereotype for different racial groups. More specifically, these results suggest that older Black and White men activate the stereotypes which most strikingly contrast them against their younger counterparts. For example, older White men may activate the rude/curmudgeonly components of the older adult stereotype more than older Black men, while older Black men may activate the frail and warm components more than older White men. Of course, as mentioned previously, it may also be the case that the "old Black man" represents a positive sub-type, unique from its constituent categories. If this is true, our results suggest that Black men have much to look forward to in old age compared to their White counterparts. Further research on these hypotheses is underway, but we believe that either could be a plausible explanation for these results. In addition to ruling out the double-jeopardy hypothesis, our results also do not support the global inhibition hypothesis, in that across the six transitions, it was the interaction between the target's age and race, not one or the other, that predicted perceived facial affect.

Perceptions of multiply-categorizable targets are complex and involve more than just simple addition of stereotype components. Our finding that one stereotype may protect against another suggests a novel direction for future intervention-related work.

Acknowledgments

References

Beale, F. (1970). Double jeopardy: To be black and female. In T. Cade (Ed.), *The black woman* (pp. 90–100). New York: New American Library.

Blakemore, K., & Boneham, M. (1994). *Age, race, and ethnicity*. Buckingham, UK and Philadelphia, PA: Open University Press.

Cuddy, A. J. C., Norton, M. I., & Fiske, S. T. (2005). This old stereotype: The pervasiveness and persistence of the elderly stereotype. *Journal of Social Issues, 61*, 267–285.

Devine, P. G. (1989). Stereotypes and prejudice. Their automatic and controlled components. *Journal of Personality and Social Psychology, 56*, 5–18.

Dowd, J. J., & Bengston, V. L. (1978). Aging in minority populations: An examination of the double jeopardy hypothesis. *Journal of Gerontology, 33*, 427–436.

Duncan, B. L. (1976). Differential social perception and attribution of intergroup violence. Testing the lower limits of stereotyping of blacks. *Journal of Personality and Social Psychology, 34*, 590–598.

Eberhardt, J. L., Dasgupta, N., & Banaszynski, T. L. (2003). Believing is seeing: The effects of racial labels and implicit beliefs on face perception. *Personality and Social Psychology Bulletin, 29*, 360–370.

Ferraro, K. F. (1987). Double-jeopardy to health for Black older adults? *Journal of Gerontology, 42*, 528–533.

Hugenberg, K., & Bodenhausen, G. V. (2003). Facing prejudice. Implicit prejudice and the perception of facial threat. *Psychological Science, 14*, 640–643.

Hummert, M. L., Shaner, J. L., & Garstka, T. A. (1995). Cognitive processes affecting communication with older adults: The case for stereotypes, attitudes, and beliefs about communication. In J. F. Nussbaum & J. Coupland (Eds.), *The handbook of communication and aging research* (pp. 105–132). Mahwah, NJ: Erlbaum.

Inzlicht, M., Kaiser, C. R., & Major, B. (2008). The face of chauvinism: How prejudice expectations shape perceptions of facial affect. *Journal of Experimental Social Psychology, 44*, 758–766.

Kite, M. E., Stockdale, G. D., Whitley, B. E., & Johnson, B. T. (2005). Attitudes toward younger and older adults: An updated meta-analytic review. *Journal of Social Issues, 61*, 241–266.

Levin, S., Sinclair, S., Veniegas, R. C., & Taylor, P. L. (2002). Perceived discrimination in the context of multiple group memberships. *Psychological Science, 13*, 557–560.

Macrae, C. N., Bodenhausen, G. V., & Milne, A. B. (1995). The dissection of selection in person perception: Inhibitory processes in social stereotyping. *Journal of Personality and Social Psychology, 69*, 397–407.

Macrae, C. N., Milne, A. B., & Bodenhausen, G. V. (1994). Stereotypes as energy-saving devices: A peek inside the cognitive toolbox. *Journal of Personality and Social Psychology, 66*, 37–47.

Perdue, C. W., & Gurtman, M. B. (1990). Evidence for the automaticity of ageism. *Journal of Experimental Social Psychology, 26*, 199–216.

Sagar, H. A., & Schofield, J. W. (1980). Racial and behaviour cues in black and white children's perceptions of ambiguously aggressive acts. *Journal of Personality and Social Psychology, 39*, 590–598.

Weber, R., & Crocker, J. (1983). Cognitive processes in the revision of stereotypic beliefs. *Journal of Personality and Social Psychology, 45*, 961–977.