

Age Differences in Choice Satisfaction: A Positivity Effect in Decision Making

Sunghan Kim, M. Karl Healey, and David Goldstein
University of Toronto

Lynn Hasher
University of Toronto and The Rotman Research Institute of
Baycrest Centre

Ursula J. Wiprzycka
University of Toronto

The authors tested the possibility that older adults show a positivity effect in decision making, by giving younger and older adults the opportunity to choose 1 of 4 products and by examining the participants' satisfaction with their choice. The authors considered whether requiring participants to explicitly evaluate the options before making a choice has an effect on age differences in choice satisfaction. Older adults in the evaluation condition listed more positive and fewer negative attributes than did younger adults and were more satisfied with their decisions than were younger adults. There were no age differences among those who did not evaluate options. This evaluation-dependent elevation of satisfaction among older adults was still present when participants were contacted 2 weeks after the experiment. Age did not influence the accuracy with which participants predicted how their satisfaction would change over time.

Keywords: aging, choice satisfaction, decision making, positivity

There is evidence across a variety of cognitive systems that older adults show a tendency toward positivity in situations in which emotion plays a role (see Mather & Carstensen, 2005, for a review). For example, older adults direct visual attention away from a negative stimulus, even if doing so slows their detection of other task-relevant stimuli (Mather & Carstensen, 2003), and older adults recall proportionally more positive and fewer negative pictures than do younger adults and correctly recognize fewer negative, if not more positive, pictures than do younger adults (Charles, Mather, & Carstensen, 2003; but see Grady, Hongwanishkul, Keightley, Lee, & Hasher, 2007). More generally, compared with younger adults, older adults are more emotionally positive (e.g., Carstensen, Isaacowitz, & Charles, 1999; Labouvie-Vief & Blanchard-Fields, 1982) and their experience of negative emotions is less frequent and shorter lasting (Carstensen, Pasupathi, Mayr, & Nesselroade, 2000). A number of theorists have proposed mechanisms to account for positivity effects. For example, according to socioemotional selectivity theory (Carstensen et al., 1999), older adults perceive time as limited and thus tend to adopt maintaining

positive affect as their primary goal, whereas younger adults perceive time as open-ended and tend to adopt knowledge acquisition as their primary goal. Similarly, Labouvie-Vief and Blanchard-Fields (1982) argued that affect and cognition are better integrated with age, leading to better regulation of emotion by older adults (Gross et al., 1997; Labouvie-Vief, Hakim-Larson, DeVoe, & Schoeberleim, 1989; Lawton, Kleban, & Dean, 1993).

Positivity effects in fundamental processes, such as attention and memory, may translate into positivity effects in more complex abilities, such as decision making. For example, Mather and Johnson (2000) found that, more so than younger adults, older adults distorted memory in favor of a chosen alternative by attributing to it more positive and fewer negative features. Similarly, in a choice task in which participants used a computer mouse to reveal information about products, older adults spent more time viewing positive information and less time viewing negative information than did younger adults (Mather, Knight, & McCaffrey, 2005). Positivity effects may also extend beyond the lab; older adults presented with realistic family problems tended to provide solutions that minimized the amount of negative affect experienced (Blanchard-Fields, Stein, & Watson, 2004).

Sunghan Kim, M. Karl Healey, David Goldstein, and Ursula J. Wiprzycka, Department of Psychology, University of Toronto, Toronto, Ontario, Canada; Lynn Hasher, Department of Psychology, University of Toronto, and The Rotman Research Institute of Baycrest Centre, Toronto, Ontario, Canada.

This research was supported by National Institute on Aging Grant R37 AGO4306. We thank all the people who helped us in the data collection and entry processes of this project.

Correspondence concerning this article should be addressed to Sunghan Kim, Department of Psychology, University of Toronto, 100 St. George Street, Toronto, Ontario M5S 3G3, Canada or to Lynn Hasher, Department of Psychology, University of Toronto, 100 St. George Street, Toronto, Ontario M5S 3G3, Canada. E-mail: shkim@psych.utoronto.ca or hasher@psych.utoronto.ca

Decision Making and Positivity Effects

Much decision-making research has been focused on the goal of evaluating the quality of choices by a variety of objective measures such as the strategies used (e.g., Tversky & Kahneman, 1974), the closeness of a decision's conformity to a normative standard such as maximizing utility while minimizing cost (Bettman, Luce, & Payne, 1998), the decisions made by experts, or the decisions made by a large group of individuals (McMackin & Slovic, 2000; Wilson & Schooler, 1991). However, in this work, how the decision maker feels about the choice has largely been ignored, and some research has sug-

gested that a decision maker can be subjectively dissatisfied with a choice, even if it is objectively perfect (Iyengar, Wells, & Schwartz, 2006; Yates & Patalano, 1999).

The distinction between objective measures of decision quality and subjective measures of choice satisfaction is particularly important when comparing decision making between younger adults and older adults because the mechanisms responsible for positivity effects may produce differences in subjective choice satisfaction. To determine whether positivity effects extend to choice satisfaction, we asked participants in the current study to choose which of several familiar products they wanted to take home. Participants then rated how much they liked the chosen product, both immediately after the choice and after having owned the product for 2 weeks.

However, it is not entirely clear whether older adults will exhibit elevated choice satisfaction in all situations. On the one hand, older adults may show higher satisfaction than younger adults show if the older adults tend to focus on the positive aspects of their choices and quickly forget about the negative consequences. On the other hand, additional factors may influence whether superior integration of cognition and emotion will translate into increased choice satisfaction. For example, Mather and Knight (2005) found that positivity effects in memory depend on the operation of cognitive control processes and disappear if participants must perform a secondary task that disrupts these control processes. That is, cognitive control processes play a critical role in producing positivity effects, but they do not operate automatically and effortlessly.

Thus, although greater emotional regulation among older adults may be subserved by tighter integration between emotion and cognition, not all situations will allow these processes to be engaged. Indeed certain factors may make participants more likely or less likely to engage the relevant control processes and therefore dictate whether a positivity effect is observed.

One manipulation that may serve to engage these emotion-regulating cognitive control processes is asking participants to evaluate the choice options by carefully thinking about reasons for liking and disliking each option prior to making a decision. In discussing the impact of evaluation on satisfaction, Millar and Tesser (1986) suggested that attitudes have both affective and cognitive components. Consistent with the suggestion that evaluation engages cognitive control, they argue that evaluating products is likely to elicit the cognitive component, whereas asking participants to rate how satisfied they are with a choice is more likely to elicit the affective component. However, in the case of older adults, we propose that if cognition and emotion are well integrated, inducing evaluation should elicit both the cognitive and the affective components. That is, forcing older adults to think about the options would engage the cognitive control processes responsible for cognitive and emotional integration, which would allow older adults to make choices that are more satisfying. Thus, we expected that evaluation would raise satisfaction for older adults.

In contrast, when younger adults evaluate options in the process of making a decision, they are likely to base their choices mainly on attributes that are relevant to the cognitive component. However, when they are later asked to rate their satisfaction with their choices, they are likely to focus on attributes relevant to the affective component. If there is no necessary correlation between the cognitively relevant attributes and the affectively relevant attributes of an option, such a mismatch between components

elicited by the evaluation and rating procedures would have an unpredictable effect on satisfaction, leading to increases in satisfaction in some cases (Crossley & Highhouse, 2005; Kmett, Arkes, & Jones, 1999) and to decreases in others (Dijksterhuis & van Olden, 2006; Wilson, Schooler, Hodges, Klaaren, & LaFleur, 1993). Therefore, we made no predictions about the effect of evaluation for younger adults.

To recapitulate, we predicted that when participants were not required to evaluate the options, the age groups would report similar satisfaction because the mechanisms that produce the positivity effects often seen in older adults would not be engaged. When evaluation was required, we predicted that older adults would be more satisfied than would younger adults because cognitive control processes would lead younger adults to an appraisal of the options based predominantly on cognitive considerations but would lead older adults to an appraisal that integrates cognition and emotion.

As an additional test for positivity effects, we examined what the participants wrote about the products during the evaluation to determine whether older adults tended to produce more positive evaluations. Finally, the positivity effect mechanisms discussed above suggest that, in contrast to younger adults, whose satisfaction tends to decrease over time (Wilson et al., 1993), older adults should predict that their own satisfaction would be stable over time. To test this prediction, before they left the lab, we had participants predict how satisfied they would be with their choice in 2 weeks, and participants were called back 2 weeks later to allow us to assess the accuracy of their predictions.

Method

Participants

The participants in this experiment were 98 undergraduate students (age 18–28 years, $M = 20.91$ years) from the University of Toronto and 103 older adults (age 60–76 years, $M = 68.45$ years) from the Toronto, Ontario, Canada area. Older adults had a significantly higher vocabulary score ($M = 30.90$, $SD = 8.69$), as tested with the Extended Range Vocabulary Test (ERVT), Version 3 (Ekstrom, French, Harman, & Dermen, 1976), than younger adults had ($M = 18.35$, $SD = 8.43$), $t(197) = 10.34$, $p < .001$ (ERVT scores were unavailable for 2 older adults). Older adults also had significantly more years of education ($M = 15.91$, $SD = 3.57$) than younger adults had ($M = 14.55$, $SD = 2.16$), $t(199) = 3.24$, $p < .01$.¹ Younger adults were compensated with credit in an introductory psychology course, and older adults received Can\$12 (U.S.\$11.32) for their participation.

Materials

Four products served as choice alternatives: a blue click top pen, a white ceramic mug, a key chain flashlight, and an 8.5 in. \times 11

¹ Although older adults scored significantly higher on the vocabulary test and had significantly more years of education than did younger adults, the effects (see the results section for details) cannot be attributed to these factors because, collapsed across age groups, the correlations between the vocabulary scores or the years of education and each of the choice satisfaction ratings (current, predicted, and 2 weeks later) were not significant: $r_s < .07$ between the vocabulary scores and each of the choice satisfaction ratings, and $r_s < .05$ between the years of education and each of the choice satisfaction ratings. The effects also remained significant even after these factors were controlled in the analyses.

in. (21.59 cm × 27.94 cm) magnetic white board with a marker. The products were purchased from a wholesaler at a cost of less than Can\$5 (U.S.\$4.71) per unit. The ERVT was given to both younger adults and older adults, and the Short Blessed Test (Katzman et al., 1983), which is used to detect early signs of cognitive impairment associated with aging, was administered to older adults.

Procedure

Participants were tested individually and were randomly assigned to either the control condition or the evaluation condition. When participants arrived at the lab, they were seated at a table where the four products were laid out with their names presented on a computer screen. Participants in the evaluation condition were first asked to describe in handwriting what they liked and disliked about each of the products. Then all participants, regardless of condition, were told that they would keep one of the products; they were asked to select the one object they liked most by pressing the appropriate key on the keyboard. The participants were asked to rate how much they currently liked the chosen item and were then asked to predict how much they would like the product after 2 weeks. Both ratings were made on the same 9-point scale (1 = *dislike very much*; 9 = *like very much*).

Finally, all participants completed the ERVT, and older adults completed the Short Blessed Test. Participants were then given a mock debriefing, in which we only partially explained the purpose of the experiment, to avoid biasing their responses during a follow-up interview that occurred, unexpectedly by the participants, approximately 2 weeks later. For the interview, participants were contacted by phone and were asked to rate, on the same 9-point scale, how much they currently liked the product they had chosen. A full debriefing was then sent to the participants.

Results

No significant interaction between age and product was found on liking ratings in either the control condition or the evaluation condition ($F_s < 1$); as a result, we collapsed across the four products in the following analyses.

Choice Satisfaction (Liking) Ratings

Figure 1 displays satisfaction ratings as a function of age and condition. We conducted a 2 (age: younger, older) × 2 (condition: control, evaluation) between-subjects analysis of variance (ANOVA) on the initial liking ratings. The main effect of age, $F(1, 197) = 4.10, p < .05$, was qualified by a significant interaction between age and condition, $F(1, 197) = 6.56, p < .05$. There was no age difference in the control condition, $t(99) = 0.37$, whereas in the evaluation condition, older adults showed greater satisfaction than did younger adults, $t(98) = 3.30, p < .01$. Older adults in the evaluation condition gave higher ratings than did older control participants, $t(101) = 2.18, p < .05$, but evaluation did not influence satisfaction for younger adults, $t(96) = 1.42, p = .16$.

We conducted a parallel ANOVA with actual satisfaction after 2 weeks as the dependent measure. Again, there was the main effect of age, $F(1, 170) = 6.07, p < .05$, qualified by the Age × Condition interaction, $F(1, 170) = 4.23, p < .05$. Planned com-

parisons revealed that after 2 weeks, older adults in the evaluation condition remained more satisfied than did younger adults, $t(87) = 3.30, p < .01$, and there were still no age differences in the control condition, $t(83) = 0.28$.

Future Satisfaction Prediction

A three-factor (age: younger, older; condition: control, evaluation; rating time: initial, predicted) ANOVA with both age and condition as between-subjects factors and rating as a within-subjects factor was performed. The two levels of rating time were the participant's initial satisfaction rating and the participant's prediction of how satisfied he or she would be in 2 weeks (see Figure 1). This analysis² yielded the significant main effect of rating time, $F(1, 197) = 5.84, p < .05$, which was qualified by the significant interaction between rating time and age, $F(1, 197) = 7.79, p < .01$. Younger adults predicted that their satisfaction would decrease significantly, $F(1, 96) = 11.66, p < .001$, but older adults did not predict a significant change, $F(1, 101) = 0.08$.

Prediction Accuracy

A three-factor (age: younger, older; condition: control, evaluation; rating time: predicted liking in 2 weeks, actual liking after 2 weeks) ANOVA with both age and condition as between-subjects factors and rating time as a within-subjects factor was performed. The results of this analysis³ are displayed in Figure 1. There was the significant main effect of rating time, $F(1, 170) = 3.90, p = .05$, suggesting a tendency for actual satisfaction after 2 weeks to be lower than predicted. However, rating time did not interact with age, $F(1, 170) = 2.25, p = .14$, nor did the Rating Time × Age interaction differ as a function of evaluation condition, $F(1, 170) = 0.36$, indicating that accuracy of prediction did not differ with age.

Reason Listing

The handwritten evaluations provided by participants in the evaluation condition were transcribed and given to two independent raters who were blind to our hypotheses and blind to the age groups of the participants. The raters were asked to read the evaluations of each product and to record the number of statements reflecting a positive evaluation (e.g., "I like the pen because it is push-button retractable rather than having a cap that one has to put on and take off") and the number of statements reflecting a

² This analysis also yielded the main effect of age, $F(1, 197) = 10.88, p < .01$, qualified by the significant interaction between age and condition, $F(1, 197) = 4.90, p < .05$. Further analyses showed no age difference in the control condition, $F(1, 99) = 0.58$, and a significant age difference in the evaluation condition, $F(1, 98) = 15.47, p < .001$. These patterns of data are consistent with those of the analyses on the initial satisfaction rating and the satisfaction rating after 2 weeks.

³ In addition to the results reported in the main text, there was the main effect of age, $F(1, 170) = 16.38, p < .0001$, and the interaction between age and condition, $F(1, 170) = 4.90, p < .05$, mirroring the patterns found when actual satisfaction after 2 weeks was analyzed in isolation. As with all other analyses of the various satisfaction ratings, there was the age effect in the evaluation condition, $F(1, 87) = 19.38, p < .0001$, but not in the control condition, $F(1, 83) = 1.71, p = .20$.

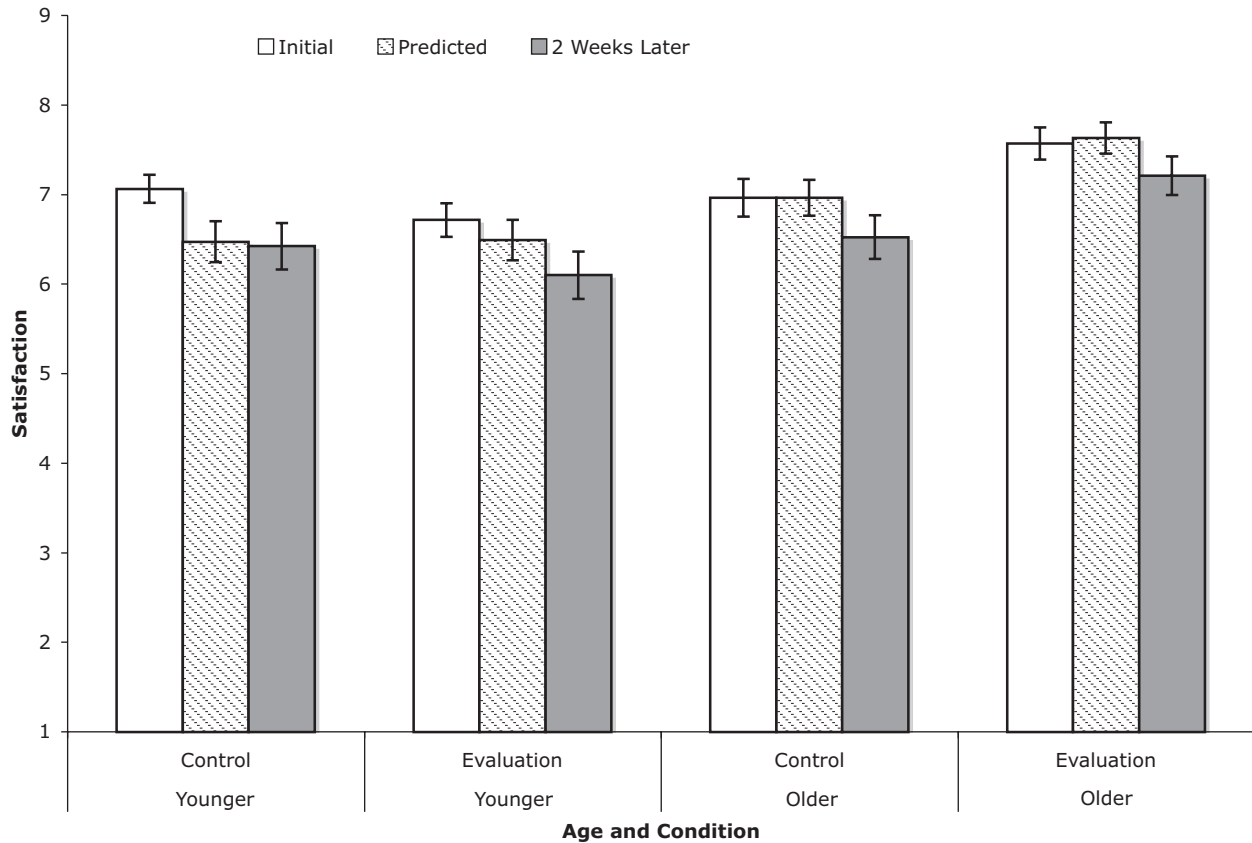


Figure 1. Mean initial, predicted future, and actual future decision satisfaction ratings for younger and older adults in the control condition and evaluation condition. Error bars represent 1 standard error of the mean.

negative evaluation (e.g., “The mug is too heavy”). Often, a participant listed several positive (or negative) attributes in a single sentence. In such cases, raters scored each attribute separately except in cases in which attributes were redundant. For example, the statement “[I] like that it is practical, refillable, has nice color, and is easy to use” has four positive attributes because each refers to a unique quality of the product, whereas, “I do not like the pen because it has blue ink. Black ink is better for most uses, for example, photocopying and signing legal documents. I would not buy this pen because it has blue ink. I would buy this pen if it had black ink” has only one negative attribute because all the statements refer to the same aspect of the product (ink color). Overall the interrater correlation for counts of positive and negative attributes was quite high, $r(816) = .91, p < .001$, and was similar across products (range: $r = .93$ to $r = .82, ps < .01$). We took the average of the raters’ counts for each observation (i.e., the evaluation of one product from one participant) and then summed these averaged counts across the four products to produce the total number of positive and the total number of negative attributes listed by each participant (examining the products individually produced similar results). See Table 1, for the means by valence and age.

The data were submitted to a 2 (age: younger, older) \times 2 (valence of attributes: positive, negative) ANOVA, with age as a between-subjects factor and valence as a within-subjects factor.

There were no differences in the total number of attributes listed by older ($M = 12.92, SD = 4.03$) and younger adults ($M = 13.22, SD = 4.60$), $F(1, 100) = 0.73$. There was, however, the significant effect of valence, $F(1, 100) = 91.00, p < .01$, indicating that both age groups listed more positive attributes than negative attributes. It is critical that there was the significant interaction, $F(1, 100) = 12.83, p < .01$, which can be attributed to the fact that whereas older adults produced significantly more positive attributes than did younger adults, $F(1, 100) = 4.33, p < .05$, older adults produced significantly fewer negative attributes, $F(1, 100) = 13.04, p < .01$. That is, older adults’ evaluations were both more positive and less negative than were those of younger adults.

Although the participants’ evaluations were analyzed primarily to examine whether our older participants showed a positivity

Table 1
Mean Number of Positive and Negative Attributes Listed During Product Evaluation by Older and Younger Adults

Age	Positive valence		Negative valence	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Younger	8.02	3.17	5.20	2.87
Older	9.57	4.25	3.36	2.27

effect, we also explored the relations between the number of positive and negative attributes listed for the chosen item and each of the three choice satisfaction ratings (current, predicted, and 2 weeks later) for the chosen item. Collapsed across age group, none of the correlations between the number of positive attributes and each of the satisfaction ratings was significant ($r_s = .11, .13, \text{ and } .08$, respectively), whereas all the correlations between the number of negative attributes and each of the satisfaction ratings were significant ($r = -.31, p < .01$; $r = -.37, p < .01$; and $r = -.24, p < .05$, respectively). However, further analyses within each age group revealed that the number of negative attributes and each of the choice satisfaction ratings were correlated only for younger adults ($r = -.34, p < .05$; $r = -.36, p < .05$; and $r = -.34, p < .05$, respectively) and not for older adults ($r_s = -.13, -.18, \text{ and } .05$, respectively), suggesting a greater influence of negative information than positive information on choice satisfaction in younger adults.

Discussion

We examined the influence of age and level of evaluation on choice satisfaction based on the hypothesis that older adults' choice satisfaction would show a positivity effect but only if cognitive control processes were engaged. Our data support this hypothesis: Older adults in the evaluation condition recorded more positive and fewer negative attributes in their evaluations and reported higher satisfaction levels immediately after making the choice than did younger adults; older adults' predictions of how satisfied they would be after 2 weeks were higher than were those of younger adults, and older adults remained more satisfied after 2 weeks than did younger adults. It is critical that the positivity effect we observed was not a universal feature of older adults' decision and evaluation processes; it only emerged when they were induced to evaluate the options before making a choice. These results suggest that cognitive control processing or analytic information processing is required before greater cognitive-emotional integration can impact satisfaction, a claim that is consistent with Mather and Knight's (2005) finding that preferential remembering of positive rather than negative stimuli among older adults depends on cognitive control processes. Our results are also consistent with Labouvie-Vief's (2003) dynamic integration theory, which emphasizes a dynamic balance between automatically operating optimization of positive emotions and cognitively controlled differentiation of negative emotions.

However, alternative explanations are also possible. First, perhaps older adults showed increased satisfaction because they were simply more focused on positive features during the evaluation phase. This explanation is unlikely because, as reported above, there was no correlation between the number of positive attributes listed and the choice satisfaction ratings for older adults. Second, because older adults tend to worry about their cognitive abilities more than younger adults do and because older adults often show higher motivation to prove the adequacy of their cognitive abilities, it may be that older adults' elevated choice satisfaction ratings in the evaluation condition merely reflect a higher motivation to justify their choices. But this explanation is also unlikely because no age effect was found in the control condition. That is, if older adults' motivation had been greater than that of younger adults,

then older adults' choice satisfaction should have been higher even in the control condition.

We found that for younger adults, number of negative attributes but not number of positive attributes listed during evaluation was correlated with choice satisfaction. By contrast, for older adults, there was no correlation between number of negative attributes or positive attributes and choice satisfaction. Although our hypothesis makes no clear predictions regarding these correlations, they are broadly consistent with the notion that because older adults tightly integrate cognition and emotion, older adults should not be unduly influenced by either positive or negative information.

Our results also raise the question of why evaluation did not impact younger adults' satisfaction as it has in past research (e.g., Crossley & Highhouse, 2005; Dijksterhuis & van Olden, 2006; Kmett et al., 1999; Wilson et al., 1993). The key may lie in the fact that the decision task in the present study was relatively simple; the number of alternatives was small and the products themselves were concrete. In the decision literature, it is known that people tend to switch from a complex (or systematic) strategy to a simple (or heuristic) strategy as the complexity of a decision task (e.g., the number of alternatives) increases (e.g., Payne, 1976). If so, it is possible that in the current study younger adults were in fact engaged in analytic processing in both the control and the evaluation conditions. A tendency toward analytic processing in both conditions may explain why younger adults were not influenced by the evaluation manipulation as much as older adults were and why younger adults were not influenced as much as in previous studies.

In this light, the fact that no positivity effect was found in the control condition suggests that older adults did not spontaneously engage in evaluation. However, a choice involving more emotionally salient or valuable options (e.g., expensive products or insurance policies or medical treatments) rather than the inexpensive everyday products used here may lead older adults to engage in evaluation even without explicit instructions to do so and to therefore show a positivity effect. The questions of whether different decision tasks are more likely or less likely to encourage participants to spontaneously engage in evaluation and of whether younger adults are more likely to evaluate without explicit instructions to do so remain open. Other variables that may moderate the effect should also be examined. For example, Labouvie-Vief (2003) suggested that emotional regulation becomes suboptimal at high levels of emotional activation or arousal.

It should be noted that the current study is not the first attempt to examine the impact of evaluation on choice satisfaction from the perspective of group differences. Iyengar et al. (2006) found that satisficers, who select the first option that meets a set of minimum criteria, were more satisfied with their choices than were maximizers, who consider all possible options before making a choice. Moreover there is evidence that maximizing is associated with negative affect (Schwartz et al., 2002), whereas increasing age is associated with positive affect (Carstensen et al., 1999; Carstensen et al., 2000; Labouvie-Vief & Blanchard-Fields, 1982). Indeed, although they do not report exact statistics or demographic information, Iyengar et al. (2006) discussed unpublished data showing a negative correlation between age and maximizing tendencies in a national sample, and preliminary data from our own lab support this finding. More research is needed to conclusively establish a shift from maximizing to satisficing with increasing age, but one

could speculate that adopting satisficing tendencies is one mechanism that allows older adults to maintain positive affect.

Concluding Remarks

In previous research on older adults' decision making, researchers have found that during an information search, older adults tend to focus on positive information (Mather et al., 2005) and even show memory distortions that make their choices seem more positive than they really were (Mather & Johnson, 2000). The present study adds to this nascent literature by addressing the impact that a tendency toward positivity in information search and memory have on actual satisfaction with decisions and by showing that this impact can last for at least 2 weeks.

The current findings suggest that aspects of choice satisfaction may indeed have important implications beyond the lab. Not only were older adults' satisfaction levels increased simply by our asking them to spend a few minutes evaluating their options but this effect persisted for at least 2 weeks after these adults had left the lab. Furthermore, the fact that evaluation had an asymmetrical effect on older and younger adults has practical implications. Both marketers and the creators of decision aids should carefully consider their audiences: An advertisement or intervention that has a positive impact on one age range may have a qualitatively different impact on another.

References

- Bettman, J. R., Luce, M. F., & Payne, J. W. (1998). Constructive consumer choice processes. *Journal of Consumer Research*, 25, 187–217.
- Blanchard-Fields, F., Stein, R., & Watson, T. L. (2004). Age differences in emotion-regulation strategies in handling everyday problems. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, 59, P261–P269.
- Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist*, 54, 165–181.
- Carstensen, L. L., Pasupathi, M., Mayr, U., & Nesselroade, J. R. (2000). Emotional experience in everyday life across the adult life span. *Journal of Personality and Social Psychology*, 79, 644–655.
- Charles, S. T., Mather, M., & Carstensen, L. L. (2003). Aging and emotional memory: The forgettable nature of negative images for older adults. *Journal of Experimental Psychology: General*, 132, 310–324.
- Crossley, C. D., & Highhouse, S. (2005). Relation of job search and choice process with subsequent satisfaction. *Journal of Economic Psychology*, 26, 255–268.
- Dijksterhuis, A., & van Olden, Z. (2006). On the benefits of thinking unconsciously: Unconscious thought can increase post-choice satisfaction. *Journal of Experimental Social Psychology*, 42, 627–631.
- Ekstrom, R. B., French, J. W., Harman, H., & Dermen, D. (1976). *Kit of factor-referenced cognitive tests* (Rev. ed.). Princeton, NJ: Educational Testing Service.
- Grady, C. L., Hongwanishkul, D., Keightley, M., Lee, W., & Hasher, L. (2007). The effect of age on memory for emotional faces. *Neuropsychology*, 21, 371–380.
- Gross, J. J., Carstensen, L. L., Pasupathi, M., Tsai, J., Götestam Skorpen, C., & Hsu, A. Y. C. (1997). Emotion and aging: Experience, expression, and control. *Psychology and Aging*, 12, 590–599.
- Iyengar, S. S., Wells, R. E., & Schwartz, B. (2006). Doing better but feeling worse: Looking for the “best” job undermines satisfaction. *Psychological Science*, 17, 143–150.
- Katzman, R., Brown, T., Fuld, P., Peck, A., Schechter, R., & Schimmel, H. (1983). Validation of a short orientation-memory-concentration test of cognitive impairment. *American Journal of Psychiatry*, 140, 734–739.
- Kmetz, C. M., Arkes, H. R., & Jones, S. K. (1999). The influence of decision aids on high school students' satisfaction with their college choice decision. *Personality and Social Psychology Bulletin*, 25, 1293–1301.
- Labouvie-Vief, G. (2003). Dynamic integration: Affect, cognition, and the self in adulthood. *Current Directions in Psychological Science*, 12, 201–206.
- Labouvie-Vief, G., & Blanchard-Fields, F. (1982). Cognitive aging and psychological growth. *Ageing and Society*, 2, 183–209.
- Labouvie-Vief, G., Hakim-Larson, J., DeVoe, M., & Schoeberleim, S. (1989). Emotions and self-regulation: A life span view. *Human Development*, 32, 279–299.
- Lawton, M. P., Kleban, M. H., & Dean, J. (1993). Affect and age: Cross-sectional comparisons of structure and prevalence. *Psychology and Aging*, 8, 165–175.
- Mather, M., & Carstensen, L. L. (2003). Aging and attentional biases for emotional faces. *Psychological Science*, 14, 409–415.
- Mather, M., & Carstensen, L. L. (2005). Aging and motivated cognition: The positivity effect in attention and memory. *Trends in Cognitive Sciences*, 9, 496–502.
- Mather, M., & Johnson, M. K. (2000). Choice-supportive source monitoring: Do our decisions seem better to us as we age? *Psychology and Aging*, 15, 596–606.
- Mather, M., & Knight, M. (2005). Goal-directed memory: The role of cognitive control in older adults' emotional memory. *Psychology and Aging Special Issue: Emotion-Cognition Interactions and the Aging Mind*, 20, 554–570.
- Mather, M., Knight, M., & McCaffrey, M. (2005). The allure of the alignable: Younger and older adults' false memories of choice features. *Journal of Experimental Psychology: General*, 134, 38–51.
- McMackin, J., & Slovic, P. (2000). When does the explicit justification impair decision making? *Applied Cognitive Psychology*, 14, 527–541.
- Millar, M. G., & Tesser, A. (1986). Effects of affective and cognitive focus on the attitude-behavior relation. *Journal of Personality and Social Psychology*, 51, 270–276.
- Payne, J. W. (1976). Task complexity and contingent processing in decision making: An information search and protocol analysis. *Organizational Behavior and Human Performance*, 16, 366–387.
- Schwartz, B., Ward, A., Monterosso, J., Lyubomirsky, S., White, K., & Lehman, D. R. (2002). Maximizing versus satisficing: Happiness is a matter of choice. *Journal of Personality and Social Psychology*, 83, 1178–1197.
- Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, 185, 1124–1131.
- Wilson, T. D., & Schooler, J. W. (1991). Thinking too much: Introspection can reduce the quality of preferences and decisions. *Journal of Personality and Social Psychology*, 60, 181–192.
- Wilson, T. D., Schooler, J. W., Hodges, S. D., Klaaren, K. J., & LaFleur, S. J. (1993). Introspecting about reasons can reduce post-choice satisfaction. *Personality and Social Psychology Bulletin*, 19, 331–339.
- Yates, J. F., & Patalano, A. L. (1999). Decision making and aging. In D. C. Park, R. W. Morrell, & K. Shifren (Eds.), *Processing of medical information in aging patients: Cognitive and human factors perspectives* (pp. 31–54). Mahwah, NJ: Erlbaum.

Received March 22, 2007

Revision received May 16, 2007

Accepted June 10, 2007 ■