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Choosing to be happy?
Age differences in ‘maximizing’ decision strategies
and experienced emotional well-being

Paper submitted to Netspar conference

Wändi Bruine de Bruin

Centre for Decision Research, Leeds University Business School
Department of Engineering and Public Policy, Carnegie Mellon University

Andrew M. Parker

RAND Corporation

JoNell Strough

Department of Psychology, West Virginia University

AUTHOR NOTE

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Please address correspondence to Wändi Bruine de Bruin, Centre for Decision Research, Leeds University Business School, Maurice Keyworth Building, Leeds LS2 9JT, United Kingdom. w.bruinedebruin@leeds.ac.uk (email); +44(0)1133438839 (phone)

Abstract (75-100 words)

Maximizing is a decision strategy that seeks the very best option, which is more elaborate and potentially more regret-inducing than choosing an option that is ‘good enough.’ In surveys with a large national sample, we find that older adults are less likely than younger adults to self-report maximizing, which is associated with their better experienced well-being reported two years later. This pattern holds after controlling for demographic characteristics and negative life events. Our findings suggest that older adults could possibly be opting for decision strategies that make them happier. We discuss implications for interventions that aim to improve decision making.

Keywords: aging, decision making, maximizing, emotional well-being

Choosing to be happy?

Age differences in ‘maximizing’ decision strategies and experienced emotional well-being

People of all ages face decisions that potentially affect their experienced emotional well-being. Different decision strategies can be applied to making decisions. Maximizing is a decision strategy in which options are extensively searched and compared, with the goal of selecting the one that is the very best (Edwards, 1954). Satisficing is an alternative decision strategy that seeks an option that is good enough on key attributes of interest (Simon, 1955, 1956). Choosing to maximize thus involves accepting the costs of spending more time and cognitive effort so as to obtain the benefit of selecting the best option that is available. Yet, achieving the goals of maximizing can be difficult when the best option is not that much better from ones that can pass for ‘good enough’ (Simon, 1955, 1956). Maximizing can even be counterproductive when it is impossible to identify the best option, due to for example ill-defined goals, large numbers of similar options, time limitations, or other complexities common to life decisions (Payne, Bettman, & Johnson, 1993).

Decision strategies may change with age. Empirical studies show that older adults search fewer options, prefer smaller choice sets, and consider less information, as compared to younger adults (Besedeš, Deck, Sarangi, & Shor, 2012; Johnson, 1990, 1993; Hanoch et al., 2011; Mata & Nunes, 2010; Reed, Mikels, & Simon, 2008, Reed, Mikels, & Löckenhoff, 2013). Thus, older adults may be less likely than younger adults to apply maximizing strategies to their decision making.

Individual differences in the tendency to maximize (rather than satisfice) are often measured with Schwartz et al.’s (2002) self-report scale. Higher overall ratings on this scale reflect more maximizing, while lower overall ratings on this scale reflect more satisficing. Empirical evidence has confirmed that people who have stronger tendencies to maximize, as

reported on this scale, search more alternatives before making their choice (Chowdhury, Ratneswar, & Mohanty, 2009; Dar-Nimrod et al., 2009; Yang & Chiou, 2010). The scale has three components that may each be relevant to understanding how people make decisions (Nenkov, Morrin, Ward, Schwartz, & Hulland, 2008): (a) the tendency to *search for alternatives* even after good options have been identified; (b) the tendency to create *decision difficulty* due to wanting the best decision outcome even when it is difficult to identify, and (c) the tendency to apply *high standards* when making decisions. Which tendencies best represent the ‘maximizer’ has been debated (Diab, Gillespie, & Highhouse, 2008; Lai, 2010).

Schwartz et al.’s (2002) conceptualization of maximizing includes the excessive search for alternatives, which leads individuals to question whether their decisions could have been better. Although such ‘counterfactual thinking’ may generate ideas for improving future decisions (Roese, 1997), it can also cause self-blame and regret (Davis, Lehman, Silver, Wortman, & Ellard, 1996; Zeelenberg & Pieters, 2007). Continuing to search for better options after decisions are made can undermine satisfaction, even with relatively good outcomes (Iyengar, Wells, & Schwartz, 2006; Lai, 2011; Sparks, Ehrlinger, & Eibach, 2012).

To date, we are unaware of any studies that have examined age differences in alternative search or the Schwartz et al.’s (2002) other components. Many studies of Schwartz et al.’s (2002) scale involved students or other convenience samples with limited age diversity. The two studies that did examine the relationship between adult age and maximizing found inconsistent results, reporting no significant correlation (Parker et al., 2007), and that older adults maximize less (Tanius et al., 2009). Neither study used a national life-span sample, or reported correlations between age and the alternative search component.

Yet, there is reason to believe that older adults will be less inclined than younger adults to search for better alternatives to the extent that it contributes to feelings of dissatisfaction. Older adults are less likely than younger adults to self-report internal conflicts about what

they should have done differently (Riediger & Freund, 2008), which is central to Schwartz et al.'s (2002) conceptualization of maximizers' alternative search (Iyengar et al., 2006; Lai, 2011; Sparks et al., 2012). There is also evidence that the negative relationship between age and counterfactual thinking may contribute to older adults' better emotional well-being (Riediger & Freund, 2008). Several studies suggest that emotional well-being is preserved or even improves with increasing age (Carstensen et al., 2011; Carstensen, Pasupathi, Mayr, & Nesselroade, 2000; Charles, Reynolds, & Gatz, 2001; Kessler & Staudinger, 2009).

Here, we present the first study to examine age differences in components of Schwartz et al.'s (2002) maximizing vs. satisficing scale, and their association with experienced emotional well-being as reported two years later. We follow previous studies of age differences in experienced emotional well-being in terms of distinguishing between negative affect and positive affect, because age differences in negative affect may be more pronounced (Carstensen et al., 2000; Charles et al., 2001; Kessler & Staudinger, 2009). Our analyses also take into account demographic variables as well as low income and negative life events, as they have been suggested as possible contributors to well-being (Kahneman, & Deaton, 2007) and may vary with the tendency to maximize vs. satisfice (Parker et al., 2007). Thus, we have two main research questions. First, are there age differences in the maximizing vs. satisficing tendency and especially its alternative search component? Second, are age differences in experienced emotional well-being associated with the maximizing vs. satisficing tendency and especially its alternative search component?

METHOD

Participants

We obtained online survey data from RAND's American Life Panel (<https://alpdata.rand.org/>). A national life-span sample was initially recruited through random digit dialling for the University of Michigan's national surveys. Additional recruitment

efforts aimed to reach more members of underrepresented populations. Interested individuals were given equipment and internet access, if they needed it to join the panel. After they join the panel, members are invited to participate in web surveys, for about \$20 per 30 minutes. Our sample included 2221 panel members who had completed our measures on two surveys. Their mean age was 50.71 ($Mdn=52$; $SD=14.43$; range 18-91; 5th-95th percentile=25-73; IQR=40-61). A total of 41.9% had a college degree, 88.5% were white, 39.7% were male, and median income was in the \$50,000-\$59,999 range. Of the 3227 who were invited, 2623 (81.3%) completed the first survey. Of those, 2235 (85.2%) completed the second survey. Six were excluded because their self-reported age was inconsistent across the two surveys. We thus retained 2221 of the initial 3227 (68.8%) for our analyses. Retained panel members were somewhat older ($M=50.71$, $SD=14.43$ vs. $M=46.10$, $SD=15.77$), $t(3216)=-8.14$, $p<.001$, and more likely to be white (88.5% vs. 86.0%), $\chi(1)=4.19$, $p=.04$, and female (60.3% vs. 55.4%), $\chi(1)=6.88$, $p=.01$, as compared to those who were not retained. They showed no significant difference in income or education ($p>.10$). We controlled for these variables in our analyses.

Procedure

We conducted a secondary analysis of online data from two surveys conducted two years apart. Survey 1 involved the maximizing measure and was fielded in September-October 2010. Survey 2 involved the other measures and was fielded in May-July 2012. In the American Life Panel online database, the surveys are referred to as MS153 and MS244.

Survey 1.

Maximizing and components. Participants completed Schwartz et al.'s (2002) 13-item measure, which has three components (Nenkov et al., 2008). Six items asked about alternative search (e.g., "No matter how satisfied I am with my job, it's only right for me to be on the lookout for better opportunities"), four about decision difficulty (e.g., "I often find it difficult to shop for a gift for a friend"), and three about high standards (e.g., "I never settle

for second best”).¹ Participants rated each (1=completely disagree; 7=completely agree). Internal consistency was sufficient for overall scores ($\alpha=.70$), but varied for components ($\alpha=.67$ for alternative search; $\alpha=.62$ for decision difficulty; $\alpha=.66$ for high standards). Mean scores were computed for overall maximizing ($M=3.77$, $SD=.82$), alternative search ($M=3.38$, $SD=1.15$), decision difficulty ($M=3.52$, $SD=1.24$), and high standards ($M=4.89$, $SD=1.09$).

Survey 2.

Emotional well-being. Participants rated how they felt yesterday, on positive (enjoyment, happiness, interest, enthusiasm, content) and negative items (anger, depression, sadness, stress, worry, frustration, fatigue, loneliness, boredom, pain). Because Survey 2 was designed for a methodological study (Kapteyn, Lee, Tassot, Vonkova, & Zamarro, in press), participants were randomly assigned to one of three response scales: yes/no, 1-5 ratings, or 0-6 ratings. Internal consistency was sufficient for each ($\alpha \geq .85$ for positive affect; $\alpha \geq .84$ for negative affect). Mean scores for positive and negative affect were standardized into z -scores for each scale ($M=.00$, $SD=1.00$) to warrant analyses across scales.²

Negative life events. Questions were asked in two stages. First, participants responded to yes/no questions to indicate whether or not they had experienced specific life events during the past 5 years. Second, if they had experienced an event, they indicated when it happened, on a scale from 1-5 years ago. We focus on the negative events reported in the last year, because those would have happened after the first survey, and because recent events are more relevant to people’s current well-being. Conclusions about relationships between age, maximizing and well-being are unaffected by the choice of time period, or whether or not life events were included as covariates. The specific life events (and the percent who experienced them in the previous year) included having involuntarily lost their job for reasons other than retirement (5.3%), been unemployed and looking for work for more than three months (4.7%), moved to a worse residence or neighborhood (1.6%), been robbed or had their house

burglarized (2.5%), been the victim of fraud (5.6%), had a heart attack (.3%), had a stroke (.1%), had cancer (1.4%), stayed in a nursing home (.6%), gotten divorced/separated from spouse/partner (3.5%), and experienced the death of their spouse/partner (1.0%), their father (2.5%), or their mother (3.0%). On average, participants experienced 2.5% ($SD=4.9$) of these life events over the previous year.

RESULTS

Correlations between age, maximizing, and emotional well-being

Table 1 shows correlations between age, maximizing, and experienced emotional well-being. Older adults reported being less inclined to maximize (or more inclined to satisfice), as compared to younger adults. In partial correlations controlling for other component scales, age was negatively correlated with engaging in alternative search and creating decision difficulty, but not to applying high standards.^{3,4} Moreover, older adults reported better experienced emotional well-being than younger adults, as seen in higher ratings of positive affect, and lower ratings of negative affect. Additionally, participants who reported less overall maximizing indicated more positive affect and less negative affect, as did those reporting less alternative search and decision difficulty. The tendency to set high standards was unrelated to reported emotions (see also Diab et al., 2008).

Linear regressions predicting emotional well-being

In linear regressions controlling for negative life events, income, education, race, and gender, age was still associated with more positive affect and less negative affect (Table 2; Models 1a and 2a).⁵ The relationship between age and both emotion measures was reduced after considering the significant contributions of overall maximizing vs. satisficing (Table 2; Models 1b and 2b), or component tendencies (Table 2; Model 1c and 2c).

Relationships between age, maximizing, and emotional well-being

Our next analyses examined whether age differences in overall maximizing and alternative search statistically contributed to age differences in emotional well-being.

The role of overall maximizing. Our models used 1,000 bootstrapping resamples (Preacher & Hayes, 2008) to examine the role of overall maximizing in the relationship between age and each measure of experienced emotional well-being, while statistically controlling for negative life events, income, education, race, and gender. Age was entered as a continuous variable, with unstandardized (B) estimates reflecting changes related to one year of age. As seen in three steps, the relationship between age and each type of emotional well-being was partly accounted for by overall maximizing (95% CI=.001, .003 for positive affect; 95% CI=-.003, -.002 for negative affect). First, age was related to less overall maximizing ($B=-.011$, $p<.001$). Second, less overall maximizing was related to better emotional well-being ($B=-.158$, $p<.001$ for positive affect; $B=.229$, $p<.001$ for negative affect). Third, the relationship between age and emotional well-being ($B=.004$, $p=.006$ for positive affect, $B=-.009$, $p<.001$ for negative affect) was reduced after taking into account overall maximizing ($B=.002$, $p=.121$ for positive affect; $B=-.006$, $p<.001$ for negative affect).

The role of maximizing scale components. Our next analyses were similar to the first, but replaced overall maximizing with its three components. As seen in three steps, the relationship between age and each measure of emotional well-being was statistically accounted for by alternative search (95% CI=.001, .002 for positive affect; 95% CI=-.003, -.001 negative affect) but not decision difficulty (95% CI=.000, .001 for positive affect; 95% CI=-.001, .000 negative affect) or high standards (95% CI=.000, .000 for positive affect; 95% CI=.000, .000 negative affect). First, age was related to less alternative search ($B=-.021$, $p<.001$). Second, less alternative search was related to each measure of better emotional well-being ($B=-.066$, $p<.01$ for positive affect; $B=.102$, $p<.001$ for negative affect). Third, the

relationship between age and better emotional well-being ($B=.004$, $p=.006$ for positive affect, $B=-.009$, $p<.001$ for negative affect) was reduced after taking into account alternative search ($B=.002$, $p=.117$ for positive affect, $B=-.006$, $p<.001$ for negative affect).

DISCUSSION

Maximizing is a decision strategy that involves searching for alternatives with the goal of selecting the best option (Edwards, 1954), instead of satisficing by settling for one that is ‘good enough’ (Simon, 1955, 1956). However, individuals who tend to search excessively for alternatives are prone to questioning their choices, and feeling unhappy (Schwartz et al., 2002). Searching for better options after completing a choice can undermine satisfaction, even with relatively good outcomes (Iyengar et al., 2006; Lai, 2011; Sparks et al., 2012).

Our findings show that older adults are less likely than younger adults to self-report maximizing tendencies. Older adults were especially less inclined to engage in the alternative search component of maximizing. Moreover, older adults’ lesser maximizing and alternative search was associated with better experienced emotional well-being, including more positive affect and less negative affect. These findings held after taking into account negative life events and demographic variables. Possibly, older adults are more likely than younger adults to engage in decision strategies that keep them happy.

Like any study, ours had limitations. Most notably, one limitation is that we have no direct evidence of the mechanisms that underlie the presented findings. We speculate that different mechanisms may explain why older adults are less inclined than younger adults to engage in maximizing, including alternative search (Peters & Bruine de Bruin, 2012; Strough, Parker, & Bruine de Bruin, 2015). First, older adults face cognitive declines that make it harder to correctly implement complex decision rules like maximizing (Bruine de Bruin, Parker, & Fischhoff, 2012; Del Missier, Mäntylä, Hansson, Bruine de Bruin, & Parker, 2013), which contributes to their preferences for smaller choice sets (Liu, Wood, & Hanoch,

2015). Second, the finding that older adults are less likely than younger adults to engage in excessive alternative search may reflect their increased motivation to optimize positive affective experiences (Carstensen, 1992), and their reduced willingness to spend effort on difficult tasks they no longer enjoy (Bruine de Bruin, McNair, Taylor, Summers, & Strough, 2015; Strough, Bruine de Bruin, & Peters, 2015). Third, it is also possible that older adults have learned from experience with previous life decisions that striving for the very best poses threats to their emotional well-being that they are motivated to avoid. Indeed, it has been argued that older adults may have learned insights relevant to decision making from life experience (Bruine de Bruin, Strough, & Parker, 2014; Li, Baldassi, Johnson, & Weber, 2013; Li, Goa, Enkavi, Zaval, Weber, & Johnson, 2015; Yates & Patalano, 1999).

Another limitation is that our data about older adults' decision strategies are based on self-reports rather than observing actual decision processes. However, empirical evidence has shown that alternative search in actual consumer choices is indeed more elaborate among individuals who self-report stronger maximizing tendencies on the Schwartz et al. (2002) scale (Chowdhury et al., 2009; Dar-Nimrod et al., 2009; Yang & Chiou, 2010). Our finding that older adults self-report less alternative search are also in line with studies showing that older adults consider less information, search fewer options, and want smaller choice sets (Johnson, 1990, 1993; Hanoch et al., 2011; Mata & Nunes, 2010; Reed et al., 2008, 2013).

A third limitation refers to the lack of longitudinal data on how decision strategies change as people age. We conducted secondary data analyses of a panel that completed self-reports of decision making, and of emotional well-being two years later. Assessments of emotional well-being would have been needed at both times to draw conclusions about alternative search predicting subsequent changes in well-being, and assessments of alternative search and emotional well-being would have been needed at both times to analyze developmental change. Our cross-sectional data preclude causal conclusions about the effect

of age-related changes in alternative search on older adults' emotional well-being (e.g., Lindenberger, van Oertzen, Ghisletta, & Hertzog, 2011; Maxwell & Cole, 2007). The reported analyses only warrant conclusions about statistical contribution of cross-sectional age differences in alternative search to cross-sectional age differences in emotional well-being. Because age and cohort are confounded in our cross-sectional design (Schaie, 1965), the observed patterns could reflect either age differences or cohort effects, with older participants' lesser use of maximizing strategies reflecting their coming of age in a time when there were fewer options (e.g., Schwartz, 2004). Although we are unaware of longitudinal studies on individual differences in maximizing and alternative search, we do note that longitudinal studies have shown that aging is related to better emotional well-being (Carstensen et al., 2011).

Our findings are relevant to developers of interventions that aim to improve people's decisions. Possibly, limiting alternative search will make people feel better about their choices. Older adults already want smaller choice sets (Liu, Wood, & Hanoch, 2015; Reed et al., 2008, 2013). Younger adults also benefit from smaller choice sets, in terms of making better decisions, overcoming decision inertia, and feeling more satisfied (e.g., Besedeš et al., 2012; Botti & Iyengar, 2006; Hanoch et al., 2011; Iyengar & Lepper, 2000; Tanius et al., 2009). Thus, it should be possible to design choice environments that promote good decision outcomes and emotional well-being across the life span.

FOOTNOTES

1 Survey 1 included three alternatives to Schwartz et al.'s (2002) component measures. First, we computed Nenkov et al.'s (2008) short-form scores for Schwartz et al.'s components ($r=.81, p<.001$ for alternative search, $r=.86, p<.001$ for decision difficulty; $r=.91, p<.001$ for high standards). Each showed the same pattern of results as reported in Table 2 (Models 1c, 2c, $\alpha=.05$). Two other scales (Diab et al., 2008; Lai, 2010) focused on a

- single construct denoting high standards, and included items from Schwartz et al (2002). Both were more similar to Schwartz et al. (2002)'s high standards ($r=.79, p<.001$ for Diab; $r=.77, p<.001$ for Lai) than to decision difficulty ($r=.15, p<.001$ for Diab; $r=.09, p<.001$ for Lai) or alternative search ($r=.32, p<.001$ for Diab; $r=.11, p<.001$ for Lai). Replacing the high standards component with the Diab or the Lai score in the regressions (Model 1c, 2c; Table 2) did not affect conclusions for any of the component scales ($\alpha=.05$).
- 2 Alternative analyses that used raw responses while controlling for response mode yielded similar conclusions about relationships between age, maximizing, and affect.
 - 3 We examined the correlation between age and each of Schwartz et al.'s (2002) items. We found significant negative correlations with each of the six alternative search items (from $r=-.29$ to $r=-.07$; each $p<.01$), and with only one of the four decision difficulty items ($r=-.06, p<.01$). Age was not systematically correlated to the three high standards items, with correlations ranging from negative ($r=-.06, p<.01$) to positive ($r=.05, p=.02$).
 - 4 Without controlling for other component scales, older age was negatively related to alternative search ($r=-.27, p<.001$), while being unrelated to decision difficulty ($r=-.03, p=.12$), and having high standards ($r=-.03, p=.24$).
 - 5 Older adults were significantly less likely to report negative life events in the past year ($r=-.10, p<.001$), being white ($r=.16, p<.001$) and being male ($r=.05, p=.01$). There was a marginal relationship between age and having a college degree ($r=.04, p=.07$). Age was unrelated to below-median income ($r=-.03, p=.22$). Overall conclusions were unaffected by whether or not our regression analyses controlled for these variables.

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Table 1: Correlations between age, maximizing, and emotional well-being.

	Age	Emotional well-being	
		Positive affect	Negative affect
<i>Maximizing vs. satisficing</i>			
Overall	-.20***	-.14***	.20***
Alternative search ^a	-.28***	-.08***	.13***
Decision difficulty ^a	-.06*	-.13***	.14***
High standards ^a	-.02	.06*	-.03
<i>Emotional well-being</i>			
Positive affect	.07**	-	-.63***
Negative affect	-.14***	-.63***	-

^a Partial correlations controlling for other component scales. * $p < .05$; ** $p < .01$; *** $p < .001$. Note: Age is a continuous variable. Reported correlations with age also held in a 'trimmed sample' including only the 90% of participants whose ages fell between the 5th and 95th percentile ($\alpha = .05$).

Table 2: Linear regressions (β) on measures of emotional well-being.

	Positive affect			Negative affect		
	Model 1a	Model 1b	Model 1c	Model 2a	Model 2b	Model 2c
Age	.06**	.04	.04	-.13***	-.09***	-.11***
<i>Maximizing vs. satisficing</i>						
Overall	-	-.13***	-	-	.19***	-
Alternative search	-	-	-.08**	-	-	.12***
Decision difficulty	-	-	-.13***	-	-	.14***
High standards	-	-	.05*	-	-	-.02
<i>Co-variates</i>						
Negative life events	-.05*	-.04*	-.05*	.12***	.12***	.12***
Below-median income	-.06*	-.05*	-.05*	.07**	.06**	.05*
College degree	.08***	.07**	.06**	-.08***	-.07**	-.05*
White	.00	-.01	.00	.03	.05*	.04
Male	-.01	.02	.01	-.05*	-.09***	-.09***

* $p < .05$; ** $p < .01$; *** $p < .001$. Note: Age is a continuous variable. Reported relationships of affect with age, maximizing and components held in a 'trimmed' sample including only the 90% of participants whose ages fell between the 5th and 95th percentile ($\alpha = .05$).