

Age Differences in Emotional Reactions to Daily Negative Social Encounters

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Objectives. Negative social interactions are the most frequently reported daily stressors and most detrimental for well-being, yet we know little about older adults' efforts to regulate their emotional reactions to such encounters. This study examined age differences in emotional reactions to social encounters and the implications of these reactions for daily well-being.

Methods. Middle-aged, young-old, and oldest-old adults (59% women; aged 40–95, $N = 110$) completed daily interviews for 14 days. Each day, participants reported whether they had social interactions that made them feel irritated, hurt, or annoyed (experienced emotional reaction) and social interactions in which they could have felt irritated, hurt, or annoyed but avoided feeling that way (minimized emotional reaction).

Results. Findings revealed no age differences in the types of emotional reactions reported (experienced or minimized). Associations between emotional reactions and daily well-being varied by age group. Oldest-old individuals' well-being was less negatively affected by minimized emotional reactions, but more negatively affected by experienced emotional reactions compared with younger individuals' well-being.

Discussion. Findings support the strength and vulnerability integration model that suggests that when older individuals use avoidant strategies, they show better emotion regulation than younger individuals.

Key Words: Avoidance—Daily diary—Emotion—Negative social interactions—Oldest-old—Well-being.

NEGATIVE interpersonal interactions are the most frequently reported daily stressors and are more detrimental for well-being than noninterpersonal stressors (i.e., work overloads; Almeida, 2005; Bolger, DeLongis, Kessler, & Schilling, 1989; Rook, 2001). Age differences may occur in many facets of these interactions. Older people tend to report fewer negative interactions (Birditt, Cichy, & Almeida, 2011; Birditt & Fingerman, 2005) and they are more likely to use avoidant coping strategies in response to negative interactions, such as ignoring the problem or doing nothing, and less likely to use direct-negative strategies such as arguing or yelling than younger people (Birditt, Fingerman, & Almeida, 2005; Blanchard-Fields, 2007). Older adults' well-being also tends to be less detrimentally affected by negative interactions than younger individuals' well-being (Charles, Piazza, Luong, & Almeida, 2009).

There are several gaps in the literature regarding our understanding of age differences in negative interactions in daily life, however. The majority of research on daily negative interactions has examined behavioral rather than emotional responses to negative social interactions including arguments (i.e., direct verbal confrontation) or the avoidance of arguments (Almeida, Wethington, & Kessler, 2002; Birditt et al., 2005; Charles et al., 2009; Neupert, Almeida, & Charles., 2007). Asking about arguments may underrepresent the experience of negative emotion in relationships, especially among older adults who prefer to use avoidant coping strategies rather than engage in arguments.

In addition, there is little knowledge of daily negative interactions among oldest-old adults who may have distinct relationship experiences compared with other age groups due to increased resilience and social expertise, greater use of avoidance, and loss of social roles (e.g., widowhood; Poon & Cohen-Mansfield, 2011).

There is some controversy in the literature regarding whether oldest-old adults show continued trends of increased well-being and emotion regulation or whether there are decreases in well-being and emotion regulation among this age group (Davey, Halverson, Zonderman, & Costa, 2004; Charles et al., 2001). It is important to understand emotion regulation in negative social interactions because negative interactions are more strongly associated with well-being than positive interactions (Newsom, Rook, Nishishiba, Sorkin, & Mahan, 2005; Nezlek & Allen, 2006). Indeed, both the experience and avoidance of arguments are associated with decreased psychological and physical well-being (Almeida, 2005).

The purpose of this study was to address two aims regarding emotional reactions in negative social interactions: First, the study assessed whether middle-aged, young-old, and oldest-old adults differed in their emotional reactions to negative social interactions. In particular, the study assessed whether oldest-old adults were more likely to report that they attempted to minimize negative emotional reactions (a form of avoidance) and less likely to report that they experienced negative emotional reactions

(i.e., nonavoidance) compared with middle-aged and young-old individuals. Second, the study examined whether these emotional reactions (minimized and experienced) were associated with daily well-being and whether those associations varied by age group.

EXPERIENCED AND MINIMIZED EMOTIONAL REACTIONS TO NEGATIVE SOCIAL ENCOUNTERS

Negative social interactions include interpersonal encounters that are potentially irritating, annoying, hurtful, or generally upsetting. Individuals vary in how they respond emotionally and behaviorally to such negative interactions (Birditt & Fingerman, 2003; Cichy, Lefkowitz, & Fingerman, 2013). Theorists have long emphasized the importance of distinguishing between emotions and coping behaviors in response to events (Frijda, 1986; Lazarus & Folkman, 1984; Lazarus, 1999). For instance, two individuals may experience the same emotional reaction (e.g., annoyance) to an event, but respond with distinctly different behaviors (e.g., arguing vs ignoring the situation).

This study examined whether people experienced or minimized negative emotional reactions to social encounters rather than the types of behavioral coping strategies used. Experienced emotional reactions are defined as feeling irritated, hurt, or annoyed in response to a social interaction. Minimized emotional reactions are when individuals consciously try to avoid feeling irritated, hurt, or annoyed. In these circumstances, the negative emotions may not be absent but individuals make attempts to reduce or otherwise regulate the experience of negative emotion. These two types of reactions measure processes that occur during emotional experiences in which individuals either choose to experience the negative emotions (and possibly escalate them) or attempt to avoid the negative experience through other actions (i.e., choose not to get irritated, hurt, or annoyed; Frijda, 1986; Lazarus, 1999; Smith & Kirby, 2011). Attempts to avoid negative emotional reactions is referred to as minimization because the negative emotion is mostly likely not completely absent but the individual has made attempts to reduce or minimize the experience.

An example is provided here to illustrate these distinctions. A mother receives a call from her son in which he complains of his ongoing marital problems, but he is unwilling to listen to her advice (negative social interaction). She may first respond *emotionally* and experience feelings of irritation with her son (experienced negative emotional reaction) or attempt to avoid feeling that way (minimized negative emotional reaction). For example, she may try to avoid feeling irritated by accepting that her son has faults. Once the mother feels upset or irritated she must decide what to do *behaviorally*, such as pretend like she is not upset (avoidance of argument) or argue with her son about how he should follow her advice (engaging in argument). The way she responds emotionally or behaviorally may

affect her general psychological well-being on that day. For instance, trying not to feel irritated with her son may cause her to feel less positive affect and greater negative affect on that day due to the mental exertion and stress caused by emotional suppression (Gross & John, 2003). Likewise, feeling irritated, hurt, or annoyed may dampen her feelings of well-being on that day.

AGE DIFFERENCES IN NEGATIVE SOCIAL INTERACTIONS

The strength and vulnerability integration (SAVI) model provides a useful framework for understanding age differences in the experience of negative interactions (Charles, 2010). According to the model, as people age they experience increased ability to avoid or decrease their exposure to negative stimuli. This increased ability to use avoidance is the result of age-related improvements in several emotion regulation skills (e.g., attention, appraisals, behavior) due to a host of factors including decreased future time perspective, increased expertise, and changes in social roles (Blanchard-Fields, 2007; Carstensen, Isaacowitz, & Charles, 1999; Hess, Osowski, & Leclerc, 2005). For example, older individuals are less likely to attend to and remember negative information than are younger individuals, a phenomenon referred to as the positivity effect (Carstensen & Mikels, 2005; Mather & Carstensen, 2005). Older individuals' overall well-being is less negatively affected by their daily experiences (Whitehead & Bergeman, 2013) and they are also more likely to respond to interpersonal problems with avoidant behaviors than younger individuals (e.g., cognitive reappraisal, doing nothing; Birditt et al., 2005). Thus, according to the SAVI model, because older adults avoid negative experiences, they demonstrate improvements in well-being.

When older adults are not able to avoid negative experiences, however, they do not experience improved well-being. In these situations, older adults look similar to or worse than younger people. For example, under circumstances in which older adults experience increased and sustained negative emotion, they have less physiological flexibility to recover and thus experience decreased well-being (Charles, 2010).

Age Differences in Reactions to Negative Social Encounters

The research to date suggests that older adults are more likely to use avoidance in response to negative social interactions than younger individuals. The majority of research on daily negative interactions has examined the National Study of Daily Experiences (NSDE) data, in which participants aged 25–74 reported their experiences of arguments and avoidance of arguments every day for 8 days and again in a second wave (aged 28–84). In both waves, older age was associated with greater use of avoidance of

arguments and fewer reports of arguments (Birditt et al., 2005, 2011). It is not clear from these studies whether these findings also apply to the experience of negative emotion in social interactions.

Links Between Reactions to Negative Interactions and Well-being

The experience and minimization of negative emotional reactions in daily social exchanges may have implications for same-day well-being. Research consistently shows that both arguments and avoidance of arguments are associated with lower same-day well-being (Almeida, 2005). These associations also may vary by age, but findings are inconsistent. Some studies show that older individuals' well-being is not as detrimentally affected by negative interactions or the avoidance and engagement in arguments as younger individuals' daily well-being (Birditt et al., 2011; Neupert et al., 2007; Russel, Bergeman, & Scott, 2012), whereas other studies have found no age differences (Hay & Diehl, 2010). Charles and colleagues (2009) considered avoidance and engagement in arguments separately and found age differences in associations between avoidance and well-being but no age differences in the associations between arguments and well-being. In particular, older age was associated with a lower association between avoidance and same-day negative affect. Researchers have yet to examine, however, whether experienced and minimized emotional reactions to social encounters are linked to well-being. Indeed, how individuals respond emotionally may be an important piece of the puzzle with regard to age differences in the links between negative social interactions and well-being.

OTHER FACTORS ASSOCIATED WITH NEGATIVE INTERACTIONS AND WELL-BEING

Daily negative social interactions may vary by several sociodemographic characteristics (e.g., gender, race, education), psychosocial factors (e.g., personality), and overall health (e.g., chronic health problems). Thus, this study considered these factors as covariates. Women tend to report more negative interactions and poorer well-being than men (Almeida & Kessler, 1998). Throughout life, Blacks are disproportionately exposed to economic stressors, racism, and discrimination and may, therefore, report more negative interactions and poor well-being (Mujahid, Diez Roux, Cooper, Shea, & Williams, 2011; Ross & Mirowsky, 2001; Williams & Mohammed, 2009). Socioeconomic status and self-rated health are important predictors of stress and may influence negative interactions and well-being (Almeida, 2005; Grzywacz, Almeida, Neupert, & Ettner, 2004; Steptoe et al., 2003). Neuroticism was considered as a control for individual differences in the tendency to experience negative interactions and psychological distress (Guntherth, Cohen, & Armeli, 1999).

PRESENT STUDY

This study was designed to assess emotional reactions to daily social interactions among individuals from middle-age to oldest-old age and whether those reactions were linked with same-day well-being. Participants reported whether they experienced negative emotions or attempted to minimize experiencing negative emotions in response to social interactions every day for 14 days. Links with same-day well-being were assessed rather than next-day well-being in order to understand within-day links between interpersonal interactions and well-being similar to previous research (Almeida, 2005; Charles et al., 2009; Neupert et al., 2007). This study addressed the following questions:

1. Are there age group differences in the types of reactions reported (i.e., minimized emotions, experienced emotions)? Consistent with the SAVI model, it was predicted that oldest-old (aged 80+) individuals would report more minimization of negative emotional reactions and less experienced negative emotional reactions than middle-aged (40–59) and young-old individuals (60–79; Birditt et al., 2005; Charles, 2010).
2. Are there age group differences in links between minimized or experienced emotional reactions and same-day well-being? According to the SAVI model, because older adults prefer to avoid negative experiences, they demonstrate improvements in well-being. However, when older adults do not use avoidant strategies, their well-being looks similar to or worse than younger individuals' well-being. Thus, it was predicted that oldest-old respondents' (80+) well-being would be less detrimentally affected by minimized emotional reactions than middle-aged (40–59) and young-old (60–79) individuals' well-being. In contrast, it was predicted that oldest-old individuals' well-being would be more detrimentally affected by experienced negative emotions than middle-aged and young-old individuals' well-being.

METHODS

Participants

Participants were from the Daily Health, Stress, and Relationships study (Birditt, 2012), which included a total of 110 participants (59% women) who completed a baseline interview and daily interviews for 14 days. Data were collected by the Survey Research Center (SRC) at the Institute of Social Research, University of Michigan. Participants were randomly selected from a list sample of individuals in the metro Detroit Wayne County purchased from Marketing Systems Group/GENESYS Sampling Systems. The list was composed of households that have agreed to be included (or "listed") in published or electronic telephone directories. Participants ranged from age 40–95 years old. The sample was stratified by age and gender and evenly distributed in the age ranges

Table 1. Description of the Daily Health, Stress, and Relationships Study Sample ($N = 110$)

Variable	M (SD)	Percentage
Age (M, SD)	67.49 (14.68)	
Education (M, SD)	6.83 (2.64)	
Less than high school		11
High school/GED/some college		53
College degree		36
Self-rated health (M, SD)	3.28 (0.99)	
Female participants (%)		59
White (%)		69
Black (%)		26

Note. Education included 12 responses ranging from 1 (*no school/some grade school*), 6 (*graduated from high school*) to 12 (*phd, edd, md, dds, lld, jd, or other professional degrees*). Because higher scores signified greater education, this scale is treated as a continuous variable in analyses. Self-rated health was rated from 1 (*poor*) to 5 (*excellent*).

of 40–59 ($n = 37$), 60–79 ($n = 37$), and 80–95 ($n = 36$). Participants completed an average of 13.24 ($SD = 1.85$) days of daily interviews (response rate = 95%); 73% of participants completed all 14 days (see Table 1 for a sample description). Participants reported average to very good health, which is similar to national studies of self-rated health (Liang et al., 2010).

Procedure

Participants completed all interviews over the phone. After each daily interview, participants scheduled a time for the next interview. Thus, interview times varied somewhat across days, which are typical for daily diary studies (Almeida, 2005). Participants received a total of \$190 for completing all of the interviews (\$50 for baseline; \$10 per day). The baseline interviews lasted about an hour and the daily interviews lasted 20 min each on average.

Measures

Age group.—Participants reported their date of birth that was categorized into three groups: 0 (middle-aged, 40–59), 1 (young-old, 60–79), or 2 (oldest-old, 80–95). These groupings are common in the literature and represent distinct periods of adult development (Birditt, Jackey, & Antonucci, 2009).

Negative social interactions.—Participants completed an adapted version of the argument and avoidance of argument items from the Daily Inventory of Stressful Events (DISE; Almeida et al., 2002) used in the NSDE. Items were developed to assess whether people choose to continue or deescalate the experience of negative emotion in social interactions, that is, experienced versus minimized negative emotional reactions. To assess experienced emotional reactions, participants were asked: “Since (this time/we spoke) yesterday, did you have any social interactions (in person,

over the phone, or electronically) that made you feel irritated, hurt, or annoyed?” To assess minimized emotional reactions participants were asked: “Sometimes people do irritating or annoying things but we avoid feeling irritated or annoyed with them. Since (this time/we spoke) yesterday, did you have social interactions (in person, over the phone, or electronically) in which you could have felt irritated, hurt, or annoyed but decided not to?”

Participants could then list up to five individuals a day for each interaction type. Two daily level measures were created with these items: the number of experienced emotional reactions and the number of minimized emotional reactions each day. The possible range for each variable was from 0 to 5.

Daily psychological well-being.—To assess well-being, participants completed 14 negative affect and 11 positive affect items from the NSDE 2 (Cichy, Stawski, & Almeida, 2012; Piazza, Charles, Stawski, & Almeida, 2012), which was developed using several validated scales in the literature (Kessler et al., 2002; Mroczek & Kolarz, 1998; Watson, Clark, & Tellegen, 1988). Negative affect items included feeling worthless, so sad nothing could cheer you up, restless or fidgety, hopeless, that everything was an effort, angry, upset, ashamed, nervous, afraid, jittery, irritable, lonely, and frustrated. Positive affect items included enthusiastic, active, proud, attentive, confident, cheerful, extremely happy, calm and peaceful, in good spirits, satisfied, and full of life. Participants were asked whether they experienced each emotion since the same time on the day before or since the last interview from 0 (*none of the time*) to 4 (*all of the time*). The negative and positive affect items were averaged to create two separate scales for each diary day ($\alpha = .92$ to $.95$ and $\alpha = .85$ to $.94$, respectively).

Covariates.—Factors associated with negative interactions and well-being including gender, race, self-rated health, education, and neuroticism were considered as covariates (Almeida, 2005). All covariates were assessed in the baseline interview. Gender was coded as 0 (*men*) or 1 (*women*). Race was coded as 0 (*Not White*) or 1 (*White*) with the majority of participants who were not White being Black. Participants rated the quality of their physical health from: 1 (*poor*) to 5 (*excellent*). Education included 12 responses ranging from: 1 (*no school/some grade school*), 6 (*graduated from high school*) to 12 (*phd, edd, md, dds, lld, jd, or other professional degrees*). Neuroticism was assessed with 12 items (Eysenck, Eysenck, & Barrett, 1985) in which participants were asked the extent to which different experiences described them such as, “does your mood often go up and down?” and “do you ever feel miserable for no reason?” Participants responded to each item with a yes (1) or a no (0). A sum score of the items was created ($\alpha = .80$).

Analysis Strategy

First, descriptive statistics (i.e., means and frequencies) were calculated in order to describe the daily diary data. Next, to assess age group differences in emotional reactions and the associations between emotional reactions for well-being, multilevel models were conducted due to the nested nature of the data (i.e., days within participant). All outcomes were daily level rather than participant level variables. All continuous between-person predictor variables were grand mean centered, and the continuous daily predictor variables were group mean (i.e., within-person) centered. Age was included as a three category predictor variable that involved two dummy variables representing middle-aged and young-old respondents with oldest-old respondents as the comparison group. The models included two levels in which participants were the upper level and the days of diary were the lower level. Unconditional multilevel models were estimated to ensure that there was significant between- and within-person variance in the outcomes, and models showed sufficient within- and between-person variance in the experienced and avoided emotional reaction scores as well as the daily well-being variables. All models controlled for gender, race, self-rated health, education, and neuroticism. One oldest-old participant was omitted from the analyses due to missing self-reported health data. Thus, the models were estimated with a total of 109 participants. Dichotomous covariates were effect coded (i.e., -0.5 and 0.5), and continuous covariates were grand mean centered for ease of model interpretation (Cohen, Cohen, West, & Aiken, 2003). Effect codes and grand mean centering were used so that the model intercepts can be interpreted as the mean value of the outcome variable for participants with average values on all covariates.

Models first examined whether there were age group differences in the number of experienced and minimized emotional reactions reported. Another set of multilevel models examined links between experienced and minimized emotional reactions and same-day well-being and whether there were age group differences in those links. Models were estimated separately for the experienced and minimized reactions. The models examining links between reactions and well-being first examined associations among the number of reactions (either experienced or minimized) and daily well-being (Model 1), and then included interactions between age group and the number of reactions (experienced or minimized) predicting daily well-being (Model 2). To explore the interactions, separate models were estimated for each age group (middle-aged, young-old, and oldest-old individuals), and the unstandardized coefficients representing the association between reaction and well-being were plotted.

To estimate the proportion of variance accounted for by each model, pseudo R^2 s were calculated. The pseudo R^2 refers to the association between the estimated predicted values and the actual values of the outcome variables (Singer & Willett, 2003). To do this, associations between the estimated predicted values and the actual values of

the outcome variables were assessed using linear regressions that provided an adjusted R^2 estimate. There is some disagreement in the literature regarding the best methods for estimating R^2 in multilevel models and these statistics should be interpreted with caution (Singer & Willett, 2003).

RESULTS

Description of the Data

A total of 101 (92%) respondents described at least one negative social interaction (minimized or experienced) across the 14 days. The range for minimized emotional reactions was 0–4 ($M = 0.20$ and $SD = 0.19$), and the range for experienced emotional reactions was 0–5 ($M = 0.28$ and $SD = 0.32$).

When examining the sum of interactions across all days participants described an average of 3.91 ($SD = 4.51$) experienced emotional reactions and 2.84 ($SD = 2.65$) minimized emotional reactions to social encounters.

Participants reported negative interactions (experienced and minimized) on an average of 34% ($SD = 0.24$) of the days they were interviewed. These interactions included experienced emotional reaction on 22% ($SD = 0.20$) of days and minimized emotional reaction on 18% ($SD = 0.17$) of days.

Age Group Differences in the Types of Emotional Reactions

Multilevel models assessed age group differences in the types of emotional reactions reported (Table 2). Inconsistent with the hypothesis that oldest-old people would report more minimized emotional reactions than young-old and middle-aged people, there were no significant age group differences in the types of emotional reactions reported (i.e., experienced or minimized). As for the covariates, women and individuals with higher neuroticism scores reported more experienced emotional reactions. Individuals with more education and individuals with higher neuroticism scores reported more minimized emotional reactions.

Age Differences in Associations Between Emotional Reactions and Well-being

Next, multilevel models examined associations between the types of emotional reactions (experienced and minimized) and daily well-being and whether the links varied by age group.

Table 2. Number of Daily Emotional Reactions to Social Encounters by Age Group ($N = 110$)

	Experienced reaction		Minimized reaction	
	M (SD)	Range	M (SD)	Range
Middle-aged people ($N = 37$)	0.38 (0.41)	0–5	0.25 (0.18)	0–3
Young-old people ($N = 37$)	0.28 (0.29)	0–5	0.21 (0.22)	0–4
Oldest-old people ($N = 36$)	0.18 (0.21)	0–3	0.15 (0.15)	0–4

Experienced emotional reactions and daily well-being.—

There were main effects of experienced emotional reactions and interactions between experienced reactions and age group predicting well-being. As might be expected, main effects revealed that days in which a respondent reported more experienced emotional reactions were associated with lower positive affect and greater negative affect (Table 3).

There was a significant interaction between age group and experienced emotional reactions when predicting negative affect, but no significant interaction when predicting positive affect. The association between the number of experienced reactions and negative affect was higher among the oldest-old respondents compared with the young-old respondents but not the middle-aged respondents (Table 3). Because the dummy codes did not include comparisons between middle-aged and young-old respondents, an additional model was estimated with middle-aged respondents as the comparison group. The association between experienced emotional reactions and negative affect was greater among middle-aged respondents than among young-old respondents ($B = 0.06$, $SE = 0.03$, $p < .05$, respectively). Overall, these findings indicate that middle-aged and oldest-old respondents' negative affect was more strongly associated with experienced emotional reactions than young-old respondents' well-being. The unstandardized coefficients for experienced emotional reactions predicting negative affect by age group are presented in Figure 1. This finding is only partially consistent with the prediction that oldest-old individuals' well-being would be more detrimentally affected by experienced negative emotions than middle-aged and young-old individuals' well-being. Both middle-aged and oldest-old respondents reported higher negative affect on days in which they reported experienced emotional reactions in social encounters.

Minimized emotional reactions and daily well-being.—

There was a main effect of minimized emotional reactions and an interaction between minimized emotional reactions and age group when predicting negative affect but not positive affect. A greater number of minimized reactions was associated with greater negative affect on those days.

There was an interaction between age group and the number of minimized reactions when predicting negative affect but not positive affect. The interaction revealed a greater positive association between minimized reactions and negative affect among middle-aged respondents compared with the oldest-old respondents (Table 4). Because the dummy codes did not compare middle-aged and young-old respondents, an additional model was estimated with middle-aged respondents as the comparison group. There was a greater positive association between minimized reactions and negative affect among middle-aged respondents than among young-old respondents ($B = 0.08$, $SE = 0.03$, $p < .05$). The unstandardized coefficients for minimized emotional reactions predicting negative affect by age group are presented in Figure 1. This finding indicates that the association between minimized emotional reactions and negative affect was stronger among middle-aged people than among young-old and oldest-old people. In particular, middle-aged people reported greater negative affect on days in which they reported more minimized emotional reactions in social encounters. Overall, these findings are consistent with the hypothesis that oldest-old individuals' well-being would be less detrimentally affected by minimized emotional reactions than middle-aged individuals' well-being; however, there was no difference between young-old and oldest-old respondents.

There were also significant associations between covariates and the daily well-being measures. Participants who

Table 3. Multilevel Models Examining Daily Well-Being as a Function Experienced Emotional Reactions and Age Group ($N = 109$)

	Positive affect		Negative affect	
	Model 1	Model 2	Model 1	Model 2
Intercept	3.09 (0.12)**	3.09 (0.12)**	1.32 (0.08)**	1.32 (0.08)**
# Experienced	-0.05 (0.02)**	-0.10 (0.04)*	0.14 (0.01)**	0.18 (0.03)**
Middle-aged individuals	0.10 (0.16)	0.10 (0.16)	0.03 (0.10)	0.03 (0.10)
Young-old individuals	0.04 (0.15)	0.04 (0.15)	0.06 (0.10)	0.06 (0.10)
Oldest-old individuals				
# Experienced × Middle-age individuals		0.07 (0.04)		-0.03 (0.03)
# Experienced × Young-old individuals		0.05 (0.05)		-0.09 (0.03)**
Control variables				
Women	-0.02 (0.13)	-0.02 (0.13)	0.08 (0.08)	0.08 (0.08)
Race (White)	-0.26 (0.14)	-0.26 (0.14)	0.11 (0.09)	0.11 (0.09)
Education	0.03 (0.02)	0.03 (0.02)	0.01 (0.02)	0.01 (0.02)
Self-rated health	0.14 (0.07)*	0.14 (0.07)*	-0.09 (0.04)*	-0.09 (0.04)*
Neuroticism	-0.06 (0.02)*	-0.06 (0.02)*	0.09 (0.01)**	0.10 (0.01)**
Covariance parameters				
Between	0.39 (0.06)**	0.39 (0.06)	0.16 (0.02)**	0.16 (0.02)**
Within	0.12 (0.01)**	0.12 (0.01)	0.06 (0.01)**	0.06 (0.01)**
Pseudo R^2	.16	.16	.35	.35

All significance levels for the R squares are **.

* $p < .05$, ** $p < .01$.

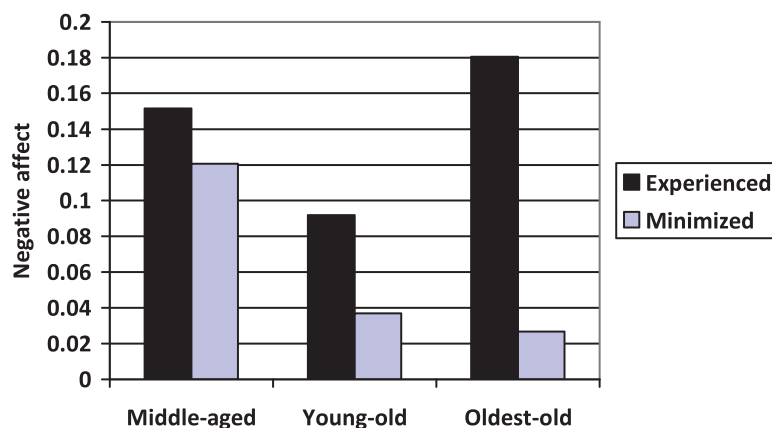


Figure 1. Unstandardized coefficients from six models examining negative affect as a function of emotional reactions (minimized and experienced) by age group.

Table 4. Multilevel Models Examining Daily Well-Being as a Function of Minimized Emotional Reactions and Age Group ($N = 109$)

	Positive affect		Negative affect	
	Model 1	Model 2	Model 1	Model 2
Intercept	3.09 (0.12)**	3.09 (0.12)**	1.32 (0.08)**	1.32 (0.08)**
# Minimized	-0.01 (0.02)	0.01 (0.04)	0.07 (0.01)**	0.03 (0.03)
Middle-aged individuals	0.10 (0.16)	0.10 (0.16)	0.03 (0.10)	0.03 (0.10)
Young-old individuals	0.04 (0.15)	0.04 (0.15)	0.06 (0.10)	0.06 (0.10)
Oldest-old individuals				
# Minimized × Middle-age individuals		-0.01 (0.05)		0.09 (0.04)**
# Minimized × Young-old individuals		-0.01 (0.05)		0.01 (0.04)
Control variables				
Women	-0.02 (0.13)	-0.02 (0.13)	0.08 (0.08)	0.08 (0.08)
Race (White)	-0.26 (0.14)	-0.26 (0.14)	0.11 (0.09)	0.11 (0.09)
Education	0.03 (0.02)	0.03 (0.02)	0.01 (0.02)	0.01 (0.02)
Self-rated health	0.14 (0.07)*	0.14 (0.07)*	-0.09 (0.04)*	-0.09 (0.04)*
Neuroticism	-0.06 (0.02)*	-0.06 (0.02)*	0.10 (0.01)**	0.10 (0.01)**
Covariance parameters				
Between	0.39 (0.06)**	0.39 (0.06)**	0.16 (0.02)**	0.16 (0.02)**
Within	0.12 (0.01)**	0.12 (0.01)**	0.06 (0.01)**	0.06 (0.01)**
Pseudo R^2	.16	.16	.34	.34

All significance levels for the R squares are **.

* $p < .05$, ** $p < .01$.

reported worse health and greater neuroticism reported greater negative affect and lower positive affect.

Post Hoc Tests

Because the models examined same-day associations between emotional reactions and affect, the effects may be due to reverse causation (i.e., well-being may predict emotional reactions). Thus, models were reestimated controlling for well-being on the day before, which is a much more conservative test of the associations (Grzywacz et al., 2004; Hay & Diehl, 2010). All of the same effects emerged (i.e., main effects and interaction between age group and minimized reactions) with one exception. The interaction between experienced reactions and age group became non-significant. This is not surprising given that controlling for previous-day well-being likely attenuates the effects of age due to the association between age and previous-day

well-being (Hay & Diehl, 2010). Indeed, an examination of the associations between experienced emotional reactions and negative affect for each age group revealed the same pattern of effects shown in Figure 1.

DISCUSSION

This study examined age differences in experienced and minimized emotional reactions to daily social encounters and their links with well-being. Assessing emotional rather than behavioral reactions (e.g., arguments), this study found no age differences in the types of emotional reactions reported (i.e., minimized or experienced). Thus, although previous studies show age differences in behavioral reactions to tensions, this study shows that oldest-old and young-old people experience as many negative emotional reactions to daily social encounters as middle-aged individuals. At the same time, this study revealed

age differences in the associations between emotional reactions and daily well-being. Consistent with the SAVI model, oldest-old individuals' well-being appeared to be less negatively affected by minimizing emotional reactions and more negatively affected by experiencing negative emotions in social encounters than younger individuals' well-being although specific age group comparisons varied (Charles, 2010).

Age Differences in Emotional Reactions to Daily Social Interactions

This study found no age differences in the minimization or experience of negative emotional reactions to negative social encounters. This finding is inconsistent with the previous literature indicating that older individuals report more avoidant coping strategies than younger individuals (Birditt et al., 2005; Blanchard-Fields, Mienaltowski, & Seay, 2007). There may have been fewer age differences because participants were asked about experienced and minimized emotional reactions rather than arguments or the avoidance of arguments. Older people may underreport negative reactions when asked about arguments because they are less likely to report destructive strategies (e.g., yelling, arguments) and more likely to report avoidance than younger adults (Birditt & Fingerman, 2005). Older people may be more likely to use avoidant strategies when confronted with direct conflict but not as a way to control negative emotional reactions. Indeed, Lazarus (1999) emphasized the need to distinguish between emotional and behavioral reactions. Older individuals may experience just as many negative emotional reactions as younger people but engage in different behaviors. Future research should examine negative emotional and behavioral reactions to understand whether this is the case.

Further, previous research suggests age differences may have emerged had adolescents and young adults been included in this study (Birditt et al., 2005; Birditt & Fingerman, 2005). It is important to note, however, that gerontological theory predicts continuous age differences such that there should be differences between the middle-aged and oldest-old adults due to changes in development and life circumstances.

Age Differences in Links Between Emotional Reactions and Daily Well-being

Interestingly, oldest-old respondents and middle-aged respondents reported greater negative affect on days in which they reported more experienced emotional reactions, whereas there was less of an association between negative affect and experienced emotional reactions among young-old respondents. Unlike much of the previous research on conflict behaviors, this study showed that older adults are not always better able to regulate their emotional reactions to situations. This finding may help to explain the conflicting

results in the past literature with regard to age differences in the association between negative interactions and well-being. Well-being appears to vary depending on how individuals react emotionally and behaviorally to negative interactions. The SAVI model suggests that there are fewer age-related improvements in emotion regulation when individuals do not use avoidance. It is possible that oldest-old individuals find it more difficult to use their emotion regulation skills in particularly stressful interpersonal situations in which they do not use avoidant strategies (i.e., feeling irritated, hurt or annoyed, or engaging in arguments). It is also possible that the strong desire to use avoidance causes oldest-old individuals to experience even greater reactivity when they experience negative emotional reactions to interpersonal interactions (Charles & Carstensen, 2008). In contrast, middle-aged individuals may experience heightened reactivity to negative interactions more generally (i.e., irrespective of experiencing or minimizing reactions). The inclusion of the oldest-old in this study contributes to the literature by showing that age differences in the associations between negative interactions and well-being are not necessarily linear and that oldest-old people may be more reactive than young-old individuals.

As hypothesized, there were age differences in the associations between minimized emotional reactions and well-being. Similar to previous research regarding the avoidance of arguments, younger individuals' well-being appeared to be more highly associated with the minimization of negative emotional reactions than older individuals' well-being (Charles et al., 2009). In particular, there was a stronger association between minimized emotional reactions and negative affect among middle-age individuals compared with the young-old and oldest-old individuals. This finding extends the previous research by showing that not only the avoidance of arguments but also the minimization of negative emotional reactions appears to be less detrimental among young-old and oldest-old adults.

It is unclear why or how young-old and oldest-old individuals' well-being is more impervious to minimized emotional reactions. Older adults may be less reactive to minimization because they are more comfortable with using avoidance than other age groups. They may also be less reactive to minimization because they are more motivated to maintain their emotional well-being and the quality of their relationships due to a decrease in future time perspective (Carstensen et al., 1999). Further, older adults may have greater expertise with using avoidance and maintaining relationships due to their accumulated life experiences (Blanchard-Fields, 2007; Hess et al., 2005).

Future Research

There are several directions for future research to pursue. First, because of the cross-sectional nature of the study design, it is unclear whether the age differences reflect

cohort and/or developmental effects. It is also unclear whether negative interactions and well-being are bidirectionally associated. For example, experiencing greater negative affect may increase the likelihood of experiencing negative emotional reactions to negative social encounters. These issues must be examined longitudinally to further specify the directional associations. An additional avenue may be to conduct experimental research on the link between well-being and negative social interactions to identify possible causal links. A future step in this research is to examine links between negative social interactions and biological indicators of stress. Previous work reveals links between the experience and avoidance of arguments and cortisol (Birditt et al., 2011) and associations between daily stress and cortisol (Savla, Roberto, Blieszner, Cox, & Gwazdauskas, 2011). These age differences in the links between interactions and well-being should next be examined using cortisol and other biometrics to understand whether age differences in emotion regulation are reflected in biological indicators and the mechanisms that account for age differences.

Future work should also explore the factors that may account for age differences in links between interactions and well-being. For example, the types of coping strategies that older people use in response to experienced and minimized emotional reactions may account for these links. Future work should assess additional characteristics of negative interactions such as the type of social partner, the specific emotions and intensity of emotions experienced, the topic of the tension (e.g., money, unsolicited advice), and who initiated the interaction as a way of understanding negative interactions more comprehensively. Finally, consideration of daily negative social interactions using a dyadic approach would be beneficial as it is unclear what the social partners were doing and thinking in these interactions. For example, are the social partners aware of the tensions and do they report the same types of reactions?

Overall, this study indicates that oldest-old people appear to experience and attempt to avoid (i.e., minimize) negative emotional reactions in their relationships as frequently as do young-old and middle-aged people. However, when they do experience negative emotional reactions, their well-being appears to be more negatively affected. It appears to be more beneficial for older adults to minimize negative emotional reactions. This study provides further evidence of the SAVI model, which suggests that older people show improvements in well-being when they use avoidant strategies.

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