Daily Stressor Forecasts and Anticipatory Coping: Age Differences in Dynamic, Domain-Specific Processes

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Abstract

Objective: We focused on the temporal space *before* stressor exposure and examined two constructs– daily stressor forecasting and anticipatory coping – for daily emotional well-being.

Method: 107 younger (*M* age = 19.44, range 18-36) and 116 older (*M* age = 64.71, range 60-90) participants reported on 1627 total days via an online daily diary study. Participants reported baseline demographic information (Day 1) and stressor forecasts, anticipatory coping, stressor exposure, and negative affect (Days 2-9).

Results: We found significant intraindividual variability in stressor forecasts. Increases in forecasts of upcoming stressors were associated with increases in anticipatory coping of those stressors in some domains. Older adults forecasted more upcoming home stressors than younger adults, but older adults reported less anticipatory coping than younger adults. Finally, we found age differences in emotional reactivity to daily home stressors depending on previous-day forecasts and coping of those home stressors. Forecasting home stressors was associated with a stronger reduction in reactivity for younger adults relative to older adults, but stagnant deliberation coping was associated with increased reactivity for younger adults, not for older adults.

Discussion: Daily stressor forecasts are dynamic and situation-specific and linked to daily anticipatory coping and age differences in reactivity to home stressors.

Keywords: stressor forecasting, daily stressors, emotional reactivity, anticipatory coping

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Daily stressors are routine tangible events of day-to-day living (e.g. arguments). Although daily stressors may seem minor compared to major life events, they can have immediate negative impacts on physical and psychological well-being (Almeida, 2005; Almeida, Wethington, & Kessler, 2002). It is generally accepted that stress is associated with poorer health and cognitive functioning, but previous work has focused on what happens *after* the stressor occurs. That is, the focus of much stress research uses the exposure of a stressful event as the starting point of the stress process. In the current study, we shift the temporal focus and detail two constructs of the stress process *before* stressor exposure: stressor forecasting and anticipatory coping.

Stressor Forecasting

Stressor forecasting describes individuals' predictions about whether a stressor will occur in a defined upcoming time period (Neubauer, Smyth, & Sliwinski, 2017) and may have differential benefits for younger and older adults depending on contextual circumstances. According to Strength and Vulnerability Integration (SAVI; Charles, 2010), age-related increases in emotional well-being are associated with more frequent and effective attentional strategies, reappraisals, and behaviors that enable older adults to avoid negative events or de-escalate events when they do occur (Charles, Mather, & Carstensen, 2003; Coats & Blanchard-Fields, 2008; Wrosch, Heckhausen, & Lachman, 2000). Although SAVI does not make specific predictions regarding stressor forecasting, it may be especially helpful for older adults who have greater flexibility in their daily lives and thus may be able to take steps to avoid the forecasted stressor (Horgas, Wilms, & Baltes, 1998). Avoiding an interpersonal stressor was associated with a larger decrease in negative affect reactivity in older compared to relatively younger adults (Charles,

Piazza, Luong, & Almeida, 2009). However, SAVI suggests that there are limits to the age-related strengths; age-related benefits in emotional functioning decrease immediately prior to or following a stressor. This suggests that forecasting an impending stressor that one is not able to avoid or mitigate could potentially have more negative implications for older as compared to younger adults (Charles & Luong, 2013).

Anticipatory Coping

Once a future stressor is perceived as unavoidable, anticipatory coping processes may be initiated. Anticipatory coping involves efforts to prepare for the stressful consequence of an upcoming event that is likely to happen (Folkman & Lazarus, 1985). This is different from proactive coping (Aspinwall & Taylor, 1997; Neubauer, Smyth, & Sliwinski, 2017) which focuses on *prevention* of a stressor. Although anticipatory coping is posited to be situation-specific and associated with reduced response (or reactivity) to a stressor (Aspinwall & Taylor, 1997; Schwarzer & Knoll, 2003), we are aware of only one study that has examined anticipatory coping from a within-person perspective within changing contexts (i.e., various stressor domains; Neupert, Ennis, Ramsey, & Gall, 2016). To capture the contextually dependent nature of coping as it occurs within people over time, microlongitudinal studies (e.g., daily diary methods) are more appropriate than cross sectional approaches (Lazarus, 1999).

Feldman and Hayes (2005) defined four forms of contextual anticipatory behaviors designed to cope with a predicted upcoming stressor in their Measure of Mental Anticipatory Processes (MMAP). Problem analysis is active contemplation of the causes and meaning of a future stressor. Plan rehearsal involves envisioning the steps required to solve the forecasted stressor. Stagnant deliberation is effortful cognition that dwells repetitively on a stressful situation, but does not find any solutions to the problem. Outcome fantasy involves responding to

problems by daydreaming or fantasizing desired outcomes. Feldman and Hayes considered stagnant deliberation and outcome fantasy as most likely maladaptive regardless of the particular stressor context, but their assessment of anticipatory coping was from a between-person perspective devoid of context. They noted that anticipatory coping is likely to vary over time and across situations and domains, and called for future researchers to use their items in a longitudinal study with ongoing naturalistic stressors. Indeed, Neupert et al. (2016) found that increases in stagnant deliberation were associated with reduced cognitive reactivity to next-day arguments. We apply a naturalistic daily diary design with a dynamic, within-person perspective and extend previous work to focus on stressor forecasting and anticipatory coping changing over time and within stressor contexts.

Stressors forecasts and anticipatory coping likely travel together within stressor domains. From laboratory-based work, we know that physiological anticipation (akin to forecasts), in the form of the cortisol awakening response, was associated with successful coping of same-day daily stressors (Powell & Schlotz, 2012). Schulz, Kirschbaum, Pruessner, and Hellhammer (1998) suggested that the cortisol awakening response may prepare the system to meet the demands of the day, implying that the physiological anticipation (forecast) is necessary for coping. The types of coping processes that occur during anticipation are a function of the nature of the threatening situation (Monat, Averill, & Lazarus, 1972), so it is vital to assess stressor forecasts and anticipatory coping in a dynamic and situation-specific manner.

Stressor Domains

We examine the roles of stressor forecasting and anticipatory coping in the stressor domains most often reported by people of all ages: interpersonal (arguments and potential arguments), home, work/volunteer, and network (stressors which happen to close friends or

family members) (Almeida & Horn, 2004). It is important to examine specific stressor domains, rather than just a frequency count of total stressor exposure, because stressor exposure on its own provides an incomplete picture of individuals' stressor experiences (Koffer, Ram, Conroy, Pincus, & Almeida, 2016). The frequency of stressor types across domains can be related to the availability or depletion of specific types of resources (Koffer et al., 2016). Drawing on Hobfoll's (1989; 2001) Conservation of Resources (COR) model, individuals continually appraise situations with respect to their resources, engaging or spending those resources in a conservative way. At their core, stressors demand and deplete resources (Halbesleben, Neveu, Paustian-Underdahl, Westman, 2014; Hobfoll, 1989), and as stressors are encountered, expenditure of resources necessary to cope leads to poorer emotional well-being (Koffer et al., 2016). Aldwin and Igarashi's (2016; Coping, Appraisal, and Resilience in Aging) CARA model speaks directly to the dynamic nature of resources and coping. According to CARA, resilience goes beyond individual resources to involve a complex transaction among sociocultural, contextual, and individual resources that can change and be changed by one's coping strategies in stressful situations. When coping with stressors, immediate, individual, contextual, and sociocultural resources are drawn upon. In line with Lazarus and Folkman (1984), Aldwin (2007), and Aldwin and Igarashi, (2016), we assert that the goodness-of-fit between stressors and coping resources is more important than the availability of general coping resources. We focus on the stressor domains representing areas where people often derive personal meaning and may be particularly important for shifting motivational goals across the adult lifespan (Neupert, Almeida, & Charles, 2007).

One way in which motivational goals shift across the lifespan is described by the Selection, Optimization, and Compensation (SOC) theory of lifespan development (Baltes &

Baltes, 1990; Freund & Baltes, 2000). With age, the ability to adapt to multiple demands declines, leading older adults to select out (avoid) potentially stressful situations, as well as to focus (optimize) their resources toward stressors they cannot avoid. Selection occurs within the context of age-related differences in stressor exposure, with older adults experiencing more exposure to network and health stressors and less exposure to work, home, and interpersonal stressors than younger adults (Almeida & Horn, 2004; Birditt, Fingerman, & Almeida, 2005; Neupert et al., 2007). Although SOC does not directly address stressor avoidance or anticipatory coping, it suggests that selection (e.g., avoiding stressors), optimization (e.g., applying resources to unavoidable stressors), and compensation (e.g., changing coping strategies) align with role changes (Koffer et al., 2016) and context. Thus, stressor forecasts and anticipatory coping strategies may vary by age and stressor domain.

Present Study

The present study used daily diary methods to address questions of forecasting domain-specific daily stressors and daily emotional well-being in younger and older adults. Building on previous work regarding the dynamic within-person process of coping for future stressors across domains (Neupert et al., 2016), we examined emotional reactivity to daily interpersonal, network, home, and work/volunteer stressors in younger and older adults as a function of previous-day stressor forecasting. The aims of the present study reflect portions of the conceptual framework in Figure 1 of the overview article (Neupert, Neubauer, Scott, Hyun, & Sliwinski, 2018). The first aim reflects the dynamic nature of forecasting stressors; we expected significant within-person variability in stressor forecasting ratings of future stressors across five domains (arguments, avoided arguments, work/volunteer, home, and network). The second aim examines within-person associations of anticipatory coping and stressor forecasting ratings in each stressor

domain. The third aim examines age differences in the forecasting of and coping with future stressors. Although age differences in anticipatory coping have not emerged within a sample consisting of exclusively older adults (Neupert et al., 2016), the current study, with the ability to make comparisons between younger and older adults, expands our understanding of differences in anticipatory coping across the adult lifespan. The fourth aim involves testing for age differences in emotional reactivity to next-day stressors depending on stressor forecasting, and the fifth aim examines age differences in emotional reactivity to next-day stressors depending on anticipatory coping.

Method

Participants and Procedure

An extreme age groups design with younger (18-36) and older (60-90) adults was used to collect daily information on the variables of interest. Both age groups were part of the Mindfulness and Anticipatory Coping Everyday (MACE) study (Hartsell & Neupert, 2017; Neupert & Bellingtier, 2017; Neupert & Bellingtier, 2018; Neupert, Bellingtier, & Smith, 2018) and completed the daily protocol online via Qualtrics, but recruitment differed across the two groups.

Older adults. Participants aged 60 and older were recruited through Amazon's Mechanical Turk. Recruitment involved posting a Human Intelligence Task requesting adults 60 and older with a link to the survey. Filters restricted participants to those living in the United States. When participants clicked the link to the survey they were redirected to Qualtrics where they provided informed consent and then continued with the Day 1 survey. Upon completion of the Day 1 survey, participants' responses were reviewed to ensure that their stated age and date of birth aligned. Participants with matching age and date of birth indicating age 60 or older, as

well as indicating that a doctor had never told them that they had dementia or mild cognitive impairment, were invited to continue with the daily portion of the study.

171 people completed Day 1, but 32 were not qualified to move on (not 60+, not in the U.S., or identified a cognitive impairment) and 23 were qualified to move on but chose not to continue. Of the initial participants, 116 (68%) continued to the daily diary portion of the study. 88 (76%) of the participants who continued to the daily diary portion completed at least 2 of the daily diary days, and 71 (61%) participants completed all 9 days. The compliance rate was 71.2%, with 743 out of 1044 possible days completed. We conducted analyses to see if older adults who were eligible to continue with the daily diary portion but chose not to were significantly different from those who did move on to the daily diary portion. The two groups were not different on any demographic characteristics (i.e., gender, age, education, marital status, working status/retirement, race/ethnicity, income).

Participants were aged 60-90 (M = 64.71, SD = 4.98, 61% women) and most identified as White (90%) and married (55%). Education ranged from less than a high school degree to a graduate degree, with Bachelor's degree the most common (30%). Most reported working at least part time (45% retired).

Participants completed online surveys over nine consecutive days. The Day 1 survey collected demographic information (e.g., age and SES). The Day 2-9 surveys contained items assessing daily stressors, affect, forecasting of and anticipatory coping with next-day stressors, and other measures not examined in the current study. Participants were compensated $1 per study day completed.

Younger adults. 107 participants were recruited from introductory psychology courses and received graduated course credit for participation; if participants completed all 9 of the study

days they fulfilled their requirement for research participation for the semester. All participants continued to the daily diary portion of the study. 106 (99%) participants completed at least 2 of the daily diary days and 89 (83%) participants completed all 9 days. The compliance rate was 91.8%, with 884 out of 963 possible days completed.

Younger adult participants ranged from 18 to 36 years old (M = 19.44, SD = 2.25, 49% female, 80% White, parents' education averaged a Bachelor's degree). Most of the participants lived on campus (64%), whereas 28% lived off campus and 7% lived at home with their family. As with the older adult sample, on Day 1 participants reported on baseline sociodemographic variables. On Days 2-9, daily stressors, daily negative affect, forecasting of and anticipatory coping with next-day stressors were reported.

For the purposes of the present study, analyses reflect data from 223 (107 younger, 116 older) participants reporting on 1627 days.

Measures

Daily stressors. The written version (Neupert et al., 2006) of the Daily Inventory of Stressful Events (DISE: Almeida et al., 2002) was used to assess daily stressors and consisted of stem questions asking whether daily stressors across seven domains had occurred within the past 24 hours (0 = no, 1 = yes). Domains included arguments, avoided arguments (something that the participant could have argued about but decided to let pass), work/volunteer- related stressors (including volunteer settings within this item allowed for potential relevance to all participants regardless of paid work status), home-related stressors, and network-related stressors (an event that happened to a friend or family member but had an effect on the participant). Health-related stressors were not analyzed in the current study because of their low endorsement (4%). Other stressors (stressors that may not have fit into the other categories) were also not analyzed in the

current study. To create a clear comparison between days with a given domain-specific stressor (e.g., home) and other types of days (e.g., days with stressors other than home stressors and days with no stressors at all), dummy codes were created for each stressor domain. For each stressor domain for each day, three codes were created: target stressor domain (0 = no, 1 = yes), all other stressors (0 = no, 1 = one or more stressors occurred in a domain other than the target stressor category), and no stressors (referent group).

Daily stressor forecasting. For each stressor domain, participants were asked to report on the likelihood of the given stressor occurring within the next 24 hours (e.g., How likely is it that you will have an argument or disagreement with someone within the next 24 hours?). This question was answered on a 5-point Likert scale ranging from 1 (*Not at all likely*) to 5 (*Extremely likely*). Higher scores indicated a greater degree of stressor forecasting in the target domain the following day.

Daily anticipatory coping. Immediately after reporting daily anticipation for each stressor domain, participants reported on the anticipatory coping they were doing for each stressor. Anticipatory coping was measured using the Measure of Mental Anticipatory Processes (MMAP) originally developed by Feldman and Hayes (2005), which assesses patterns of mental preparation in coping with future stressful events. The original questionnaire was modified to be asked on a daily basis in our previous work (Neupert et al., 2016) and applied here as well.

The items for the daily MMAP were taken from the final factor analysis by Feldman and Hayes (2005). The daily questionnaire consisted of 15 items. Each day, the same set of 15 questions was asked 7 times in the same order: one set for each domain of anticipated stressor expected to happen the following day (argument, avoided argument, work/volunteer, home, network, health, and other domain, matching the domains of the DISE questionnaire).

Within each stressor domain, participants reported the frequency of daily anticipatory coping, regardless of the level of forecast of the possible future stressor. The initial probe, "When you think about this [potential argument or disagreement] how often do you:", was followed by a list of 15 items representing the four factors of anticipatory coping. Problem analysis contained five items (e.g., "I think about why the problem is happening"). Plan rehearsal contained three items (e.g., "I think about the solution in a step-by-step fashion"). Stagnant deliberation contained five items (e.g., "I think about the problem without making progress on it"). Outcome fantasy contained two items (e.g., "I daydream about the problem fixing itself"). Each item was answered on a 5-point Likert scale ranging from 1 (*never*) to 5 (*always*). Daily mean composite scores were created for each of the four factors for each stressor with higher scores indicating a greater amount of anticipatory coping behaviors performed. Daily Cronbach's alpha scores ranged from .83 (plan rehearsal for potential arguments) to .98 (problem analysis for work/volunteer and home stressors) with a median value of .93 for the whole sample. The range of alphas separately by age group were very similar to the overall sample: .76 for plan rehearsal for potential arguments for younger adults to .99 for problem analysis for work/volunteer stressors for older adults.

Daily negative affect was measured using the 10 negative items from The Positive and Negative Affect Schedule (PANAS: Watson, Clark, & Tellegen, 1988). Participants indicated to what extent they experienced each emotion during each of the eight consecutive days. Responses ranged from 1 (*slightly or not at all*) to 5 (*extremely*). A mean composite for daily negative affect was calculated for each day, with higher scores indicating more negative affect. Daily Cronbach's alpha scores ranged from .89 (Day 2) to .94 (Day 8).

Covariates. Prior to conducting analyses to address the study aims, we examined the roles of potentially important covariates. Gender was unrelated to any of the dependent variables and education was unrelated to any of the stressor forecast ratings and only moderately related (r (216) = -.25) to negative affect. To present parsimonious models we did not control for gender or education. Being retired was associated with lower forecast ratings for upcoming work/volunteer stressors, so it was included as a covariate in all models pertaining to the work/volunteer domain. We also conducted an unconditional model to partition the within- and between-person variance in time of day of survey responding. Results suggested that there was significant variability at both levels (33% between-person and 67% within-person). Given the fluctuation in time of day of responding, we used it as a within-person covariate in all multilevel models.

Results

All analyses were conducted using SAS 9.4 (SAS Institute, 2013). Interpersonal (arguments and avoided arguments), work, home, and network stressors accounted for 78% of all stressors reported. Arguments were 18% of all stressors reported (occurring on 8.4% of days), avoided arguments were 28% of all stressors reported (occurring on 13.19% of study days), work/volunteer stressors were 11% of all stressors reported (occurring on 5.35% of study days), home stressors were 13% of all stressors reported (occurring on 6.25% of study days), and network stressors were 8% of all stressors reported (occurring on 3.89% of study days). Days with no daily stressors represented 68% of the study days.

Descriptive statistics for stressor forecasts, stressor occurrences, anticipatory coping, negative affect, and their between-person correlations with age are presented in Table 1. To adjust for the number of models used to examine the aims across five stressor domains, an alpha of .01 (.05/5) was used. Between-person correlations revealed no age differences in stressor

exposure, except for home stressors where older adults reported more frequent home stressors than younger adults. Although the frequency of home stressors differed across the age groups, the content of the home stressors determined by forced-choice follow-up questions to each affirmative stressor response was similar. The most common home stressor for both age groups was household maintenance (17% of home stressor days for older adults and 25% of home stressor days for younger adults) and having too much to do was also salient for both age groups (9% of home stressor days for older adults and 25% of home stressor days for younger adults).

Fully unconditional multilevel models (Raudenbush & Bryk, 2002) were used to test the dynamic nature of stressor forecasting ratings expected in Aim 1. These models contained no predictors and yielded estimates of within-person (σ^2) and between-person (τ_{00}) variability. The estimates were used to obtain the intraclass correlation coefficient [$\rho = \tau_{00} / (\tau_{00} + \sigma^2)$], which represents the amount of between-person variance in the dependent variable. Results are presented in Table 2. Consistent with expectations, there was a significant amount of within-person variance for each stressor forecast measure in each of the five stressor domains.

Aim 2 examined potential within-person associations between anticipatory coping (all within-person and between-person effects entered simultaneously as independent variables to adjust for individual differences in coping) and stressor forecast ratings (dependent variable) with a multilevel model for each stressor domain (see Table 3). We chose to use stressor forecast ratings as dependent variables because (1) it results in fewer models than if we used each form of anticipatory coping as a dependent variable; (2) it allows us to directly compare the predictive utility of each coping form; and (3) forecasting and coping reports were made at the same time. Across all models, there was no effect of between-person differences in any of the coping forms. For arguments and home stressors, the pattern of results was consistent. There was not a

significant effect of plan rehearsal, but on days with increased problem analysis, stagnant deliberation, and outcome fantasy, the stressor forecast ratings in each of the stressor domains were also increased. Future avoided arguments and network stressors also had the same pattern of results. There was no effect of plan rehearsal or outcome fantasy, but days with increased problem analysis and stagnant deliberation were associated with increased stressor forecasts. With respect to work/volunteer stressors, problem analysis was unrelated to anticipation, but plan rehearsal, stagnant deliberation, and outcome fantasy were each associated with increased stressor forecasts.

Aim 3 regarding age differences in forecasting and coping with future stressors were addressed through a series of between-person correlations. Older adults reported more forecasting of next-day home stressors compared to younger adults (see Table 1), but there were no age differences in forecasting of any other stressors. Across all stressor domains, there were no age differences in plan rehearsal or problem analysis. When controlling for retirement status, there were no age differences in any of the coping strategies for work/volunteer stressors. Older adults consistently reported less stagnant deliberation and outcome fantasy for interpersonal stressors (arguments and avoided arguments) and less outcome fantasy for home and network stressors than younger adults.

Aim 4 regarding age differences in stressor forecast moderating next-day reactivity to actual stressors was addressed through a series of multilevel models (see Table 4). Separate models were conducted for each stressor domain (See Supplemental Table A for model equations). Each model was a lagged model, where the previous day's outcome (i.e., negative affect) and forecast (e.g., likelihood of next-day argument) were used as predictors of the current day's outcome (i.e., negative affect). We adjusted for individual differences in exposure to each

of the target stressors by including a person-level predictor of the proportion of target stressor relative to total stressors reported. Each model also included the dummy coded stressor variable (i.e., target stressor, all other stressors, no stressors) for the current day with no stressors as the referent group. The within-person effect of the target stressor on negative affect was operationalized as emotional reactivity, in line with past work (e.g., Neupert et al., 2007). Age differences in emotional reactivity as a function of previous-day stressor forecast were tested by a Target Stressor Forecast x Age x Target Stressor Exposure interaction. Estimates of effect size were calculated based on the equations outlined by Snijders and Bosker (2011).

Across most models, there were significant main effects of age and other stressors (i.e., all other stressors experienced on a given day that were not in the target stressor domain); older adults reported less negative affect compared to younger adults, and increases in other stressors were associated with increases in negative affect compared to days with no stressors. Within the context of home stressors and in line with the predictions of Aim 4, there were age differences in emotional reactivity to home stressors as a function of previous-day forecast of home stressors. As shown in Figure 1, younger adults experienced a sharp decrease in negative affect in response to home stressors with increases in forecasts of those home stressors. In contrast, older adults did not appear to benefit as much from forecasting home stressors when a home stressor actually occurred. Notably, there was also an interaction of stressor forecast and no stressors; increases in home stressor forecast were associated with increased negative affect when the forecasted stressor did not occur.

Aim 5 regarding age differences in anticipatory coping moderating next-day reactivity was assessed with a series of 20 models (5 stressor domains * 4 anticipatory coping strategies) that were identical to the models specified in Aim 4, but replaced the stressor forecast rating with

one of the 20 anticipatory coping scales. Across all models, a significant Anticipatory Coping X Stressor X Age interaction was only found for stagnant deliberation within the context of home stressors (Stagnant Deliberation X Home Stressor X Age estimate = -.01, t = -2.60, p = .0095, see Figure 2). Separate models by age group suggested that increases in stagnant deliberation were associated with increased reactivity to home stressors for younger adults (Stagnant Deliberation X Home Stressor estimate = 0.43, t = 2.97, p = .003), but not older adults (Stagnant Deliberation X Home Stressor estimate = 0.06, t = 1.18, p = .241). Results of the other models with nonsignificant effects are available from the first author.

We conducted follow-up analyses to see if these observed age differences were related to differences in appraisals of home stressors. There were no age differences in subjective stressfulness ratings (p = .86) or perceived control ratings (p = .87) of the home stressors.

We calculated within-person correlations among all independent variables in each model to check for multicollinearity. The range of correlation values was from .03 (plan rehearsal for arguments and argument occurrence) to .94 (plan rehearsal and problem analysis for work/volunteer stressors) with a mode correlation of .11 and a median correlation of .22. Thus, issues of multicollinearity do not appear to be unduly influencing the models.

Discussion

The goals of the current study were to examine two constructs *before* stressor exposure - daily stressor forecasting and anticipatory coping - and daily emotional well-being in younger and older adults. Our results extend previous research that focused on the temporal space after stressor exposure. In line with SAVI (Charles, 2010) and SOC (Baltes & Baltes, 1990; Freund & Baltes, 2000), we found some evidence for age differences in stressor forecasting and anticipatory coping. The strengths and vulnerabilities that accompany aging may also explain the

age differences in reactivity to home stressors depending on previous-day forecast of the home stressor and previous-day anticipatory coping.

Aim 1 was addressed through unconditional multilevel models to support the first hypothesis that there would be significant intraindividual variability in daily stressor forecasts. Forecasts varied by day within-person and also across stressor domain. These fluctuating forecasts could reflect individuals' attempts to make assessments about the various stressor domains in each of their upcoming days, suggesting a tailored anticipation. These results are in line with those of Whitehead and Bergeman (2014) who found day-to-day variability in appraisal of events. Because stressors change daily, it is reasonable that their forecast should also fluctuate daily.

Aim 2 examined the within-person associations of anticipatory coping and stressor forecasts, and results suggest that these relationships were not consistent across all stressor domains. These results underscore the importance of taking a dynamic and domain-specific approach to understanding processes before stressor occurrence (Neupert et al., 2016). Days with increased problem analysis, stagnant deliberation, and outcome fantasy were associated with increased forecasts of subsequent arguments and home stressors. Days with increased problem analysis and stagnant deliberation were associated with increased stressor forecasts for subsequent avoided arguments and network stressors. Increases in plan rehearsal, stagnant deliberation, and outcome fantasy were each associated with increased work stressor forecasts. It is likely that the stressor domain matters as well as the form of anticipatory coping when examining the within-person relationships. For example, stagnant deliberation is linked to measures of avoidance (Feldman & Hayes, 2005), suggesting that avoidance may be a strategy selected in domains where there could be less control (e.g., network stressors that, by definition,

happen to someone else but turn out to be stressful to the participant). We know that the match between coping strategy and context is important for stressors that already occurred (Aldwin, 2007), and our results suggest that the match between anticipatory coping and the context of the forecasted stressors is also important.

We examined age differences in forecasting and anticipatory coping in Aim 3. Older adults forecasted and also experienced more home stressors compared to younger adults. Contrary to past work (Almeida & Horn, 2004), older adults reported more frequent home stressors than younger adults. Sample differences may partially explain these disparate findings. The youngest person in the National Study of Daily Experiences (NSDE; Almeida & Horn, 2004) was 25, whereas the average age of the younger adults in our study was 19.44. Our younger adults were also college students, with 64% residing on campus. However, it is important to note that when looking within our sample, younger and older adults reported the same common sub-domains within home stressors (i.e., household maintenance and having too much to do), which were consistent with the top two sub-domains of home stressors in the NSDE (Almeida et al., 2002). The age differences in forecasting home stressors may reflect accuracy in prediction from both age groups (Neubauer et al., 2017); older adults reported more home stressors than younger adults and they also forecasted more home stressors than younger adults.

With respect to anticipatory coping, younger and older adults consistently reported similar levels of plan rehearsal and problem analysis across all stressor domains. However, across all stressor domains except for work/volunteer stressors, older adults reported less outcome fantasy coping than younger adults. Outcome fantasy is associated with more daydreaming or fantasizing desired outcomes between-person (Feldman & Hayes, 2005) and with worse emotional and physical well-being within-person (Neupert et al., 2016). Because

engaging in positive daydreams while not expecting to accomplish goals results in negative mood (Langens & Schmalt, 2002), age differences in outcome fantasy may partially explain the observed age differences in daily negative affect. Across interpersonal stressors, older adults reported less stagnant deliberation than younger adults. Stagnant deliberation involves dwelling repetitively on a stressful problem and experiencing unproductive thoughts (Feldman & Hayes, 2005) and is associated with within-person increases in negative affect and physical health symptoms (Neupert et al., 2016). In addition to outcome fantasy, age differences in stagnant deliberation may also partially explain the observed age differences in daily negative affect. The patterns of age differences in selecting anticipatory coping strategies could reflect age differences in the first stage of selection (i.e., age-related increase in expertise in one's own stressor ecology), optimization, and compensation (Freund & Baltes, 2000).

Aim 4 examined age differences in emotional reactivity to next-day stressors depending on stressor forecasting. Within the home domain, we found that increases in home stressor forecasting were associated with increases in subsequent negative affect for both younger and older adults when the home stressor did not occur. This is in line with the idea that anticipating a future stressful state can be detrimental to well-being (Hyun, Sliwinski, & Smyth, 2018), and we extend those findings to apply to anticipation of a future event. Our finding is also consistent with previous work suggesting that being in a heightened state of awareness and scanning one's environment for potential hazards or stressors is taxing to the system (Aspinwall & Taylor, 1997). It is also possible that the reason for the forecasted event not occurring is important. Perceiving that one was able to avoid a stressor due to expended resources (Hobfoll, 1989; 2001) or proactive coping (Neubauer, Smyth, & Sliwinski, 2018) might be associated with reduced

negative affect. Future work inclusive of appraisals of non-occurrence could shed light on this issue.

Even when controlling for individual differences in stressor exposure (i.e., removing the extent to which younger and older adults differed in the number of home stressors experienced), we still found age differences in the within-person processes of home stressor forecasting and emotional reactivity to home stressors. Younger adults appear to benefit more than older adults from increases in forecasting upcoming home stressors. Hay and Diehl (2010) found that older adults were more resilient to home stressors than younger adults, but this effect was true when older adults had a coherent self-concept and the focus was on the temporal space after stressor exposure. Our finding is consistent with SAVI (Charles, 2010) which suggests that avoiding a stressor would be a strength that would accompany aging, but when the stressor cannot be avoided, forecasting may not be as beneficial. Forecasting an impending stressor that one is not able to avoid or mitigate may have more negative implications for older compared to younger adults (Charles & Luong, 2013).

Even though younger adults appear to benefit more from forecasting home stressors than older adults, results from Aim 5 suggest that the age differences in mean levels of stagnant deliberation (Table 1) may relate to age differences in within-person reactivity to home stressors. Specifically, increases in stagnant deliberation for home stressors appear to be more detrimental to younger adults' subsequent reactivity to home stressors compared to older adults. We caution against over-interpreting this result and encourage replication given that it was the only significant interaction found across 20 models. As noted in the follow-up analyses, there were no age differences in the appraisal of subjective severity or controllability of the home stressors. Our results may underscore the importance of the dynamic nature of resources and coping, outlined

in the CARA (Aldwin & Igarashi, 2016) model. According to CARA, resilience goes beyond individual resources to involve a complex transaction among sociocultural, contextual, and individual resources that can change and be changed by one's coping strategies in stressful situations. When forecasting and coping with upcoming home stressors, immediate, individual, contextual, and sociocultural resources are likely drawn upon, so comprehensively examining these resources and their deployment is needed in future work.

Limitations and Future Directions

Results from the current study should be considered in light of some limitations. The younger adults were all college students in one state, making them less diverse in terms of education and geography than the older adults. The sample was mostly White, and the older adult subsample was mostly younger old (mean age of 65), although we did have a wide age range (60-90). Future studies with more educational and geographical diversity in younger adults and with more racial and ethnic backgrounds and countries would provide an opportunity to examine additional contexts as potential moderators. In addition, future studies with an adult lifespan sample inclusive of midlife are necessary to comprehensively examine age differences in these processes. For example, it is possible that, in line with previous studies on reactivity after stressor exposure (Neupert et al., 2007), work stressors may be especially powerful sources of stressors for people in midlife and may show differential age effects in the anticipation phase.

In addition to future work incorporating adult lifespan samples, we suggest that the focus on thoughts and behaviors before stressors should be expanded as well, in line with the conceptual model put forth in Neupert, Neubauer, et al. (2018). For example, our forecast measure assessed the perceived likelihood of experiencing a given event, but it would also be valuable to combine this assessment with a subjective evaluation of the expected amount of

(dis)stress that could accompany this event (i.e., stress anticipation; see Neupert, Neubauer, et al., 2018). Similar to past work that examines the exposure and subjective assessment of past events (Almeida et al., 2002), we suggest that these constructs make sense to consider together in the anticipation phase. The current study focused on emotional reactivity with respect to negative affect, but future work examining the process of anticipating stressors with respect to positive affect could be fruitful.

Repeatedly responding to anticipatory coping questions may alter one's perspective and/or actual experience of next-day stressors and reactivity. We conducted additional analyses to see if there were systematic changes in anticipatory coping over the course of the study. Of the 20 models conducted (5 stressors * 4 coping strategies), only 4 were significant. There were significant decreases in problem analysis and stagnant deliberation for both upcoming arguments and upcoming avoided arguments. Within the context of interpersonal stressors, some facets of anticipatory coping strategies may change with repeated assessments. A measurement burst design (Nesselroade, 1991) that is able to track potential long-term changes in anticipatory coping and their corresponding changes in stressor exposure and reactivity could be promising. Although the design of the current study is able to track linkages between previous-day forecasts and coping with next-day affect, a measurement burst design could further establish the temporal ordering of the anticipation and reaction phases.

Conclusion

Limitations notwithstanding, the current study is an important first step to establish the daily dynamic nature of stressor forecasts and focus on the interplay of pre- and post- stressor exposure from a daily perspective. Our results suggest that people are not stable in their forecasts of upcoming stressors; expectations changed on a daily basis for each stressor domain. These

fluctuations in forecasts are related to some forms of anticipatory coping. Stressor forecasts and anticipatory coping are also related to age differences in reactivity to home stressors when they do occur; expecting a home stressor appears to be beneficial for younger, but not older, adults. However, applying anticipatory coping to home stressors in the form of stagnant deliberation appears to be detrimental for younger, but not older, adults. Our results highlight the importance of considering changing contexts in processes before stressor occurrence, especially as they relate to outcomes once stressors are encountered.

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Table 1

Descriptive Statistics and Correlations with Age

Variable	*M*	*SD*	Range	Correlation with Age
Stressor forecast domain				
Argument forecast	1.69	0.77	1.00-5.00	.01
Avoided argument forecast	2.10	0.98	1.00-4.88	-.02
Work/vol. stressor forecast	1.59	0.84	1.00-5.00	-.04
Home stressor forecast	1.74	0.83	1.00-5.00	.19*
Network stressor forecast	1.70	0.72	1.00-3.63	.07
Stressor occurrence				
Argument	0.08	0.13	0-1	-.15
Avoided argument	0.13	0.21	0-1	-.09
Work/vol. stressor	0.06	0.17	0-1	-.05
Home stressor	0.06	0.14	0-1	.20*
Network stressor	0.04	0.09	0-1	.04
Anticipatory coping: arguments				
Plan rehearsal	2.61	1.19	1-5	-.01
Problem analysis	2.72	1.22	1-5	-.04
Stagnant deliberation	1.90	0.79	1-4.7	-.20*
Outcome fantasy	2.10	1.08	1-5	-.28*
Anticipatory coping: avoided arguments				
Plan rehearsal	2.57	1.19	1-5	.01
Problem analysis	2.69	1.26	1-5	-.02
Stagnant deliberation	1.90	0.82	1-4.9	-.20*
Outcome fantasy	2.09	1.07	1-5	-.27*
Anticipatory coping: work/vol.				
Plan rehearsal	2.43	1.30	1-5	.08
Problem analysis	2.44	1.34	1-5	.06
Stagnant deliberation	1.72	0.89	1-4.9	-.10
Outcome fantasy	1.85	1.04	1-5	-.16
Anticipatory coping: home				
Plan rehearsal	2.58	1.25	1-5	.10
Problem analysis	2.67	1.30	1-5	.07
Stagnant deliberation	1.85	0.82	1-4.9	-.12
Outcome fantasy	2.05	1.08	1-5	-.18*
Anticipatory coping: network				
Plan rehearsal	2.58	1.22	1-5	.07
Problem analysis	2.71	1.27	1-5	.05
Stagnant deliberation	1.88	0.83	1-4.9	-.14
Outcome fantasy	2.10	1.11	1-5	-.22*
Negative affect	1.60	0.61	1.00-3.61	-0.37**

Note: Descriptive statistics are at the person level. *$p < .01$; **$p < .001$. $N = 220$-226 persons for correlations. Work/vol. = work/volunteer. Correlations between age and work/volunteer stressor forecast, work/volunteer stressor occurrence, and anticipatory coping for work/volunteer stressors were partial correlations controlling for retirement status.

Table 2

Unconditional Multilevel Models of Daily Forecasting of Next-Day Stressors

Stressor Domain	σ^2	τ_{00}	ICC	% variance within person	% variance between people
Argument	0.39 (0.02)*	0.46 (0.05)*	.54	46%	54%
Avoided argument	0.91 (0.04)*	0.79 (0.09)*	.46	54%	46%
Work/volunteer	0.45 (0.02)*	0.50 (0.06)*	.53	47%	53%
Home	0.37 (0.02)*	0.57 (0.06)*	.60	40%	60%
Network	0.41 (0.02)*	0.44 (0.05)*	.52	48%	52%

Note: ICC = Intraclass Correlation Coefficient. *$p < .001$.

Table 3
Multilevel Models of Anticipatory Coping predicting Stressor Forecast Ratings

	Arguments	Avoided Arguments	Work/Volunteer	Home	Network
			Fixed Effects		
Intercept	0.71 (0.13)**	0.90 (0.18)**	0.65 (0.13)**	0.63 (0.13)**	0.80 (0.13)**
WP Time of day	<0.01 (<0.001)**	<0.01 (<0.001)**	<-0.01 (<0.001)**	<0.01 (<0.001)**	<0.01 (<0.001)**
BP Plan Rehearsal	0.20 (0.11)	-0.08 (0.17)	-0.09 (0.14)	0.20 (0.13)	-0.04 (0.12)
BP Problem Analysis	-0.30 (0.11)	-0.15 (0.17)	-0.03 (0.14)	-0.27 (0.13)	-0.16 (0.12)
BP Stagnant Deliberation	0.26 (0.10)	0.15 (0.14)	0.13 (0.11)	0.13 (0.10)	0.03 (0.10)
BP Outcome Fantasy	-0.14 (0.07)	0.01 (0.10)	-0.07 (0.09)	-0.14 (0.07)	0.04 (0.07)
WP Plan Rehearsal	-0.06 (0.04)	-0.11 (0.06)	0.22 (0.05)**	-0.05 (0.04)	0.07 (0.04)
WP Problem Analysis	0.20 (0.04)**	0.44 (0.07)**	-0.03 (0.05)	0.20 (0.04)**	0.20 (0.04)**
WP Stagnant Deliberation	0.26 (0.04)**	0.30 (0.06)**	0.28 (0.05)**	0.35 (0.04)**	0.21 (0.05)**
WP Outcome Fantasy	0.08 (0.03)*	0.01 (0.05)	0.14 (0.04)**	0.12 (0.03)**	0.06 (0.03)
BP Retirement status (0=no 1=yes)			-0.08 (0.11)		
			Random Effects		
Intercept (Level 2; BP)	0.33 (0.04)**	0.58 (0.07)**	0.33 (0.04)**	0.37 (0.04)**	0.34 (0.04)**
Residual (Level 1; WP)	0.32 (0.01)**	0.79 (0.03)**	0.37 (0.01)**	0.28 (0.01)**	0.34 (0.01)**
R^2 BP	28%	27%	34%	35%	23%
R^2 WP	18%	13%	18%	24%	17%

Note. BP = Between-Person, WP = Within-Person. Table depicts unstandardized estimates (standard errors in brackets). Number of participants = 218; total number of observations = 1,461. Retirement status was added as a covariate in the work/volunteer model only because of its domain-specific relevance.
*$p \leq .01$; **$p < .001$.

Table 4
Multilevel Models of Previous-Day Forecasting predicting Emotional Reactivity to Next-Day Stressor

	Arguments	Avoided Arguments	Work/Volunteer	Home	Network
			Fixed Effects		
Intercept	1.44 (0.11)**	1.53 (0.11)**	1.54 (0.12)**	1.31 (0.11)**	1.53 (0.11)**
WP Time of day	<0.01 (<0.001)**	<0.01 (<0.001)**	<0.01 (<0.001)**	<0.01 (<0.001)**	<0.01 (<0.001)**
Mean Target Stressor Exposure	0.09 (0.10)	0.06 (0.10)	-0.27 (0.15)	-0.03 (0.15)	-0.11 (0.24)
Previous Day Negative Affect	0.19 (0.03)**	0.19 (0.03)**	0.19 (0.02)**	0.19 (0.02)**	0.19 (0.03)**
Age	-0.01 (0.002)**	-0.01 (0.002)**	-0.01 (0.002)**	-0.004 (0.002)	-0.01 (0.002)**
Target Daily Stressor	0.58 (0.18)*	0.30 (0.16)	0.29 (0.22)	1.50 (0.34)**	0.62 (0.33)
Target Daily Stressor x Age	-0.01 (0.005)	-0.002 (0.004)	0.001 (0.01)	-0.02 (0.006)**	-0.01 (0.01)
Other Daily Stressors	0.33 (0.14)	0.45 (0.14)*	0.34 (0.12)*	0.53 (0.12)**	0.35 (0.13)*
Other Daily Stressors x Age	-0.004 (0.003)	-0.01 (0.003)	-0.001 (0.003)	-0.006 (0.003)	-0.002 (0.003)
Target Stressor Forecast	0.06 (0.04)	-0.001 (0.03)	0.03 (0.04)	0.16 (0.04)*	0.02 (0.04)
Target Stressor Forecast x Age	-0.001 (0.001)	-0.0001 (0.001)	0.0004 (0.001)	-0.003 (0.001)*	-0.001 (0.001)
Target x Stressor Forecast	-0.10 (0.08)	-0.01 (0.06)	-0.07 (0.10)	-0.54 (0.14)**	-0.01 (0.14)
Target x Stressor Forecast x Age	0.004 (0.002)	0.0002 (0.001)	0.0004 (0.002)	0.008 (0.002)*	0.001 (0.003)
Other x Stressor Forecast	-0.07 (0.06)	-0.07 (0.05)	-0.02 (0.06)	-0.16 (0.06)*	-0.05 (0.06)
Other x Stressor Forecast x Age	0.002 (0.002)	0.002 (0.001)	-0.001 (0.002)	0.003 (0.001)	0.001 (0.001)
Retirement status (0 =no, 1=yes)			0.04 (.10)		
			Random Effects		
Intercept (Level 2; BP)	0.14 (0.02)**	0.15 (0.02)**	0.14 (0.02)**	0.14 (0.02)**	0.15 (0.02)**
Residual (Level 1; WP)	0.19 (0.01)**	0.19 (0.01)**	0.19 (0.01)**	0.19 (0.01)**	0.19 (0.01)**
R^2 BP	47%	50%	47%	47%	50%
R^2 WP	35%	33%	35%	35%	33%

Note. Table depicts unstandardized estimates (standard errors in brackets). Number of participants = 218; total number of observations = 1,461. *$p \leq .01$; **$p < .001$. BP = Between-Person, WP = Within-Person. Mean Target Stressor Exposure adjusts the estimates for individual differences in exposure of the target stressor divided by total stressor exposure. Retirement status was added as a covariate in the work/volunteer model only because of its domain-specific relevance.

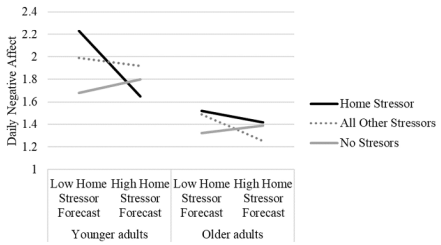

Figure 1. Daily Home Stressor Forecast X Home Stressor Exposure X Age for daily negative affect. Low and high forecast were operationalized as one standard deviation below and above the mean, respectively. Home stressor exposure was divided into three categories: home stressor only, all other stressors, and no stressors. All other stressors is included in the figure for comparison purposes. Younger adults appeared to benefit more than older adults from increases in home stressor forecasts.

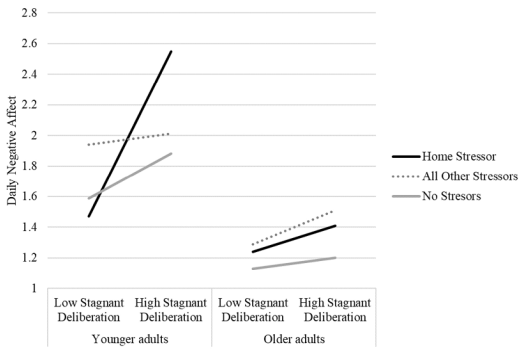

Figure 2. Daily Stagnant Deliberation for Home Stressors X Home Stressor Exposure X Age for daily negative affect. Low and high stagnant deliberation were operationalized as one standard deviation below and above the mean, respectively. Home stressor exposure was divided into three categories: home stressor only, all other stressors, and no stressors. All other stressors is included in the figure for comparison purposes. Increases in stagnant deliberation for home stressors appear to be more detrimental to younger adults' subsequent reactivity to home stressors compared to older adults.

Supplement Table A

Multilevel Modeling Equations examining Age Differences in Emotional Reactivity to Daily Stressors Depending on Stressor Forecasts

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Level 1 (daily): $\text{Negative Affect}_{it} = \beta_{0it} + \beta_{1it-1}(\text{previous day negative affect}) + \beta_{2it}(\text{time of day}) + \beta_{3it}(\text{target daily stressor exposure}) + \beta_{4it}(\text{other daily stressor exposure}) + \beta_{5it-1}(\text{target stressor forecast}) + \beta_{6it}(\text{target stressor forecast*target daily stressor exposure}) + \beta_{7it}(\text{target stressor forecast*other daily stressor exposure}) + r_{it}$

Level 2 (person): $\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{mean target stressor exposure}) + \gamma_{02}(\text{age}) + u_{0i}$

$\beta_{1i} = \gamma_{10}$

$\beta_{2i} = \gamma_{20}$

$\beta_{3i} = \gamma_{30} + \gamma_{31}(\text{age})$

$\beta_{4i} = \gamma_{40} + \gamma_{41}(\text{age})$

$\beta_{5i} = \gamma_{50} + \gamma_{51}(\text{age})$

$\beta_{6i} = \gamma_{60} + \gamma_{61}(\text{age})$

$\beta_{7i} = \gamma_{70} + \gamma_{71}(\text{age})$
