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Routine Support to Parents and Stressors in Everyday Domains: Associations With Negative Affect and Cortisol

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Abstract

Objectives: Adult children are involved a myriad of roles including providing routine (non-caregiving) support to a parent. Yet we know little about whether providing routine support to a parent is stressful and whether it has any associations with stressors in other life domains.

Methods: We use daily diary data (N = 127; Study Days = 424) from the National Study of Daily Experiences to determine whether providing routine support to an older parent is associated with higher negative affect and salivary cortisol.

Results: Results confirm that providing routine support and experiencing stressors at work were independently associated with negative affect and greater cortisol output. Stress reactions were not amplified, however, on days when adult children concurrently provided support to a parent and reported work stressors. Cutting back usual activities at work or home elevated negative affect but were not associated with an upsurge of cortisol production.

Discussion: Findings lend support to the caregiving career framework for understanding even casual routine assistance provided to a parent.

Keywords: Cortisol—Cutback—Negative affect—Parental support—Stress

Demographic trends such as longer life expectancy and delayed fertility have increased the likelihood for many Americans to occupy a central position in the support convoys of multiple family members (Lachman, Teshale, & Agrigoroaei, 2015). Adults are pulled in one direction by younger family members who look to them for emotional and tangible support (Antonucci & Akiyama, 1987). In the other direction, they act as safety nets for their aging parents, providing intermittent support for daily challenges and more frequent and intensive support when the parents' health begins to deteriorate (Kim et al., 2016a; Wiemers & Bianchi, 2015). Although researchers have begun to consider the competing demands of caring for one generation over another (Fingerman, Kim, Tennant, Birditt, & Zarit, 2016; Fingerman et al., 2011), the aging literature has ignored the consequences of providing support to a parent in the presence of strains experienced in a myriad of other roles that adults are intricately involved in. For instance, as most adults work outside the home, they often find themselves juggling work and family responsibilities (Hammer & Neal, 2008). Spending time and effort in friendship networks is also an important goal for many people as it provides opportunities for social activities that are beneficial for well-being (Chang, Wray, & Lin, 2014). Furthermore, even though we know much about intensive caregiving stressors and their spillover into other areas of life (Pearlin & Aneshensel, 1994), we know very little about whether providing occasional support to a parent, a potential precursor for future caregiving, has implications for stressors in other domains of life and whether these minor hassles are robust enough to cumulate into subsequent health

consequences for the adult children providing support. In this study, we use data from a U.S. national daily diary study to determine whether providing occasional (non-caregiving) support to an older parent is associated with negative affect and triggers physiological stress responses ascertained by higher levels of the cortisol hormones. We also test whether these stress reactions are amplified on days when adult children provide support to a parent as well as experience stressors in other competing life domains.

Literature Review

According to the American Time Use Survey (U.S. Bureau of Labor Statistics and U.S. Census Bureau, 2014), working adults spend an average of 7.8 hours on work each day. In addition, a large majority of men (65%) and women (83%) spent an average of 2.5 hours on household chores and management. Adults with co-residing children spent an additional 1–2 hours providing direct childcare contingent on the age of the children. Using daily diary data from a large national sample (M_{age} = 45 ± 11.41), another study found that 12% of adults provide emotional comfort and practical help to older parents at least once a week (Savla, Almeida, Davey, & Zarit, 2008). Thus, it is evident that the help given to a parent often occurs within the context of the roles and responsibilities of the other domains adult children occupy.

The stress process model (Pearlin & Aneshensel, 1994), the most frequently used framework in the context of intensive caregiving research, suggests that when caregivers assist a care recipient, it imposes demands on their time and energy and requires restructuring and juggling of other roles in their daily lives. Similarly, researchers that study everyday stressors have found that even minor disruptions in one domain have the potential to cause small but notable distress in other domains (Charles, Piazza, Sliwinski, Mogle, & Almeida, 2013). Furthermore, competing demands from other domains may pile up resulting in multiple role strains (Almeida, 2005; Smyth, Zawadzki, & Gerin, 2013), with the consequent symptoms of anxiety, irritability, and negative mood.

Less is known, however, about how routine support to parents affects stressors in other contexts. Previous studies have shown that even seemingly routine assistance to a parent, such as help with shopping or transportation, although mundane, is associated with psychological distress (Savla et al., 2008). The few studies that have examined such effects on home and family relationships have found that providing routine support to a parent has implications for the adult child's marital relationship, depending on the frequency of support provision and one's motivations for providing help (Polenick et al., 2017).

Moreover, interactions in some domains are more emotionally laden, which contribute to intensifying the emotions felt during disruption of routines. For example, when middle-aged adults provide advice or emotional support to an adult child, they report a positive mood. They report a negative mood, however, when they provide emotional support and practical help to an aging parent (Fingerman et al., 2016; Kim, Fingerman, Birditt & Zarit, 2016b). The authors suggest that middle-aged adults prefer to invest their energy and resources in the generation most in need, especially the younger generation. Providing support to ones' parent may also be more emotionally challenging, as it involves delicate negotiations around the elder parent's independence that takes time and sometimes leads to conflict (Heid, Zarit, & Fingerman, 2016). Past studies have also shown that the relationship between adult children and their aging parents can be ambivalent and emotionally laden; which also clarifies why providing support to the older generation over the younger generation may be more stressful (Willson, Shuey, & Elder, 2003).

The work-family interface has been the focus of considerable research (e.g., Grzywacz, Butler, & Almeida, 2008). This literature suggests that family stressors that interfere with the activities in the work domain are more consequential than work strains on family dynamics (Rotondo & Kincaid, 2008). These effects ranged from clinical depression to incidence of hypertension (Frone, Russell, & Cooper, 1997). More recently, work strains were found to be associated with lower wake-up cortisol and a flatter diurnal cortisol slope (Zilioli, Imami, & Slatcher, 2016). Few studies that have examined the effects of assisting a parent and its spillover in the work domain have sampled from intensive caregiving situations. Nevertheless, these studies suggest that time pressures of responding to a parent's needs lead adult children to cut back on activities. Some researchers believe that reduced engagement in activities may cause emotional distress, depression, burnout, and burden among caregivers (Williamson & Shaffer, 2000), whereas other studies have contended that providing support to someone may actually reduce the effects of stressors originating from other areas of one's life (Becker & Moen, 1999). For instance, adult children may cut back on work activities, or exit employment entirely (Barnett, 2015; Chung, McLarney, & Gillen, 2008), thereby reducing their exposure to work-related stress. Some other caregivers may cutback activities in other domains (such as social and leisure activities with friends) but continue to maintain their labor force attachments due to financial considerations or because work provides a break from caregiving (Carmichael & Charles, 2003; Wilson, Van Houtven, Stearns, & Clipp, 2007). Still others have speculated that adult children who find providing assistance to their parents pleasurable or personally rewarding, may benefit from cutback activities in other domains (Mausbach, Coon, Patterson, & Grant, 2008; Polenick et al., 2017). Perhaps cutting back activities may be a preemptive tactic for dealing with potential stressors and may serve to lower stress reactions. Given the mixed findings, it is important to understand the function of cutting back activities on daily stressors.

Daily Stressors and Stress Reactivity: Negative Mood and Salivary Cortisol

There are many ways of defining stressors and reactions to stressors. In this paper, we define stressor as any problematic condition or situation that a person encounters that is

perceived to be stressful, and stressor reactivity as the individual's same day psychological or physiological indicator on a stressor day compared to a stressor-free day. Similar to previous studies, we examined the association between daily stressors and negative affect as an indicator of the affective reaction to a stressor (Almeida, 2005; Charles et al., 2013; Fingerman et al., 2016; Piazza, Charles, Sliwinski, Mogle, & Almeida, 2013) and salivary cortisol output as a physiological measure of the stress response pathway, namely the hypothalamus-pituitary-adrenal axis (HPA; Adam, Hawkley, Kudielka, & Cacioppo, 2006).

While the emotional toll of providing routine (non-caregiving) support to a parent has been well-documented in previous studies (Fingerman et al., 2016; Savla et al., 2008), evidence demonstrating the physiological toll of providing routine support to a parent is scant. Studies have, however, established an association between negative emotions (e.g., anger), daily stressors (e.g., arguments, home stressors) and higher cortisol levels over the course of the day (e.g., Stawski, Cichy, Piazza, & Almeida, 2013). According to Lazarus and Folkman's Transactional Model of Stress (1987), there is a dynamic interplay between the stressor and the appraisal of the stressor that leads to considerable individual variability in stress responses. For instance, some stressors may be considered benign and expected and therefore the stress reaction may be averted. Other stressors may be unforeseen and uncontrollable and may be perceived as more overwhelming. Furthermore, some stressors may arouse an affective response, but may not be potent enough to provoke a physiological response to the stressor (Savla et al., 2013; Stawski et al., 2013). We expect that providing support to an aging parent will be associated with a higher affective and physiological response than the experiences of other daily stressors.

Other Factors Associated With Daily Affect and Support

We considered other background and contextual factors that have been found to be related to provision of support to older parents and stress reactivity as covariates, specifically, age, gender, working status, and marital status of the adult child. Past studies have found that younger adults experience greater demands on their time (e.g., caring for younger children, getting established in their jobs) and thus may find juggling multiple roles more stressful than do middle aged and older adults. Thus, we consider age as a covariate. Past research has also consistently shown that daughters are more likely to be involved in helping older parents than adult sons (e.g., Davey, Janke & Savla, 2004). Juggling the caregiving role may result in greater strain on women and so we include gender as a covariate. Similarly, an adult child's marital status is an important aspect of these intergenerational exchanges. Unmarried daughters are more likely to provide support to older parents than are married siblings, for whom the opportunity cost of providing support is higher (Davey et al., 2004). Finally, we included covariates that have been associated with cortisol production, specifically, time of waking on the day of testing (in comparison with the individuals' habitual or average waking time), and body mass index (Adam & Kumari, 2009).

Research Questions and Hypotheses

In this study, we used data from a daily diary study of a national sample of U.S. adults, which captures daily experiences, events, moods, and interactions near the time they occur and in the participant's own environment (Almeida, 2005). One of the advantages of a daily diary design is that it provides a unique opportunity to utilize participants as their own controls (Zarit et al., 2011). Thus, this design allows us to study simultaneously within-person and between-person differences in stress reactivity by examining affect and cortisol on days when stressors occur, compared with days when stressors do not occur. In the current study, we utilized the self-reported data on providing routine support and stressors to address the following research questions. First, we asked whether daily role-related stressors are associated with the type of day, specifically, days when adult children provide support to their parents compared to days when they do not provide support (Aim 1). Next, we examined whether providing support to a parent is associated with higher negative affect and increased HPA activation (i.e., higher cortisol output). We also tested whether stressors in other domains elicited similar stress responses (Aim 2). Finally, we probed whether the pile-up of stressors from other domains on days adult children provided support to a parent amplified the stress responses (Aim 3). We hypothesized that adult children will report higher negative affect and increased HPA activation on days they provide support to their older parent. Furthermore, when stressors in other domains occur on the day support is provided to a parent, there will be a piling on of stressors, which will amplify negative affect and cortisol output. We also predicted that cutting back on activities will decrease negative affect and cortisol activation on support days.

Methods

Data came from the second wave of the National Study of Daily Experiences (NSDE; Almeida, McGonagle, & King, 2009). The NSDE is a randomly selected subsample of the Midlife Development in the United States Survey (MIDUS II), a national sample of adults in the age range of 35–84 years. As part of the NSDE, 2,022 respondents completed daily diary telephone interviews answering questions about their daily experiences and activities over the course of eight consecutive evenings. In addition, on Days 2 through 5 of the study period participants provided saliva samples four times per day: upon waking, 30 minutes after getting out of bed, before lunchtime,

and at bedtime. Data on the exact time of each saliva sample were obtained from nightly telephone interviews as well as recorded by the participant on a paper-pencil log. Salivettes were frozen (at −60° C) for storing and shipping. Cortisol concentrations were measured with a commercially available luminescence immunoassay (IBL, Hamburg, Germany). Measurement units for cortisol were expressed in nanomoles/L (nmol/L).

Study Sample

Of the 2,022 individuals who participated in NSDE II, we identified 509 participants who reported providing instrumental or emotional support to a parent not living in their household (e.g., help with shopping, transportation, or household chores) on one of the eight diary days. Of these 239 (12%) participants provided help on at least one of the four saliva collection study days, however, 18 participants did not have valid time data (waking up, saliva collection) and were not included in the analyses. We also removed 84 participants from the analyses because they used medications (e.g., corticosteroids, hormonal medications, antidepressants) that interacted with the HPA activity. Missing data on the key outcome variables further reduced the number of study days and participants included in the analytical sample. Thus, our analytical sample included 127 participants who provided data on 424 study days and gave 1764 saliva samples.

Measures

Outcome Variables

Negative affect.—Participants rated an inventory of 14 emotions from the Nonspecific Psychological Distress Scale (Kessler et al., 2002; Mroczek & Kolarz, 1998) on a 5-point scale (0 = none of the time; 4 = all of the time). Scores for these emotions were averaged together for each day of the diary study. Cronbach's alpha ranged from 0.79 to 0.89 across the four study days in the analytical sample.

Total cortisol output.—For each participant, the total cortisol production for each of the four days was calculated using the area under the curve with respect to ground (AUC_G) trapezoid formula recommended by Pruessner and colleagues (2003):

$$AUC_G = \frac{(\text{out of bed cortisol} + \text{wake up cortisol}) \bullet t_1}{2} + \frac{(\text{before lunch cortisol} + \text{out of bed cortisol}) \bullet t_2}{2} + \frac{(\text{bed time cortisol} + \text{before lunch cortisol}) \bullet t_3}{2}$$

with t_1, t_2, t_3 denoting the time elapsed between the cortisol collections (in hours). The time of waking was fixed to 0 and used as the time metric and cortisol values were log transformed.

Predictor Variables

Routine support provided to a parent.—We defined providing routine support to a parent as the occasional provision of emotional support or instrumental assistance to a parent not living in the same household. Two questions were asked about support provided to people who did not live with the participant, and whether this person was specifically a parent or parent-in-law. The first question was "Since yesterday, did you spend any time giving any unpaid assistance to people who do not live with you, such as free help with shopping?" Likewise, participants were asked, "Not counting what you might do as part of your job, did you spend any time giving emotional support to anyone, like listening to their problems, giving advice, or comforting them, since yesterday?" Providing instrumental assistance, emotional support, or both on a given day to a parent or parent-in-law was coded 1 if Yes and 0 if No.

Daily stressors.—Three questions from the Daily Inventory of Stressful Experiences (Almeida, Wethington, & Kessler, 2002) were used to capture stressors in everyday living. Participants were asked the following stem, "Did anything happen at _____ that most people would consider stressful?" This stem was used to ask about stressors (a) at home, (b) at work (or school), and (c) in friendship networks (i.e., a close friend). For each of these three statements participants were asked to respond with Yes (1) or No (0).

Cut back activities.—Participants were asked whether they cut back any normal work activities or any other normal-day activities on each of the study days. Affirmative responses for either of the two questions was coded as No Cutback Today (0) or Cutback activity today (1).

Background characteristics.—Characteristics such as age (coded in years), marital status (0 = not married; 1 = married), female (0 = men; 1 = women), and work status (0 = currently not working; 1 = working or studying) were also used as covariates in the analyses. During the saliva collection, participants reported on a variety of confounders that are known to affect cortisol activity (Hsiao et al., 2015; Kumari, Chandola, Brunner, & Kivimaki, 2010). Specifically, in this paper we controlled for difference from average waking time (i.e., wake-up time later than usual), where a higher value denotes waking up later than usual and body mass index.

Analytical Plan

Descriptive statistics for all study variables were computed. To test Aim 1, domain stressors as well as daily negative affect and total cortisol output was compared on days when routine support to a parent was provided and days it was not provided using paired *t* tests. To address Aim 2—that giving routine support to a parent is associated with higher negative affect and increased HPA activation—two

separate multilevel linear models (MLM), as implemented in STATA XTMIXED (Rabe-Hesketh & Skrondal, 2008), were used to analyze the two outcomes in relation to the daily provision of support to an elderly parent and other everyday stressors. Since negative affect and cortisol production were measured for each participant on four of the study days, we had two levels of data. The following two-level model was used to estimate the day-level (Level 1) and person-level (Level 2) relationships between daily negative affect and provision of support:

$$\begin{aligned}\text{NEGAFF} = {} & \gamma_{00} + \gamma_{10}\,\text{Any Support Provided to a Parent} \\ & + \gamma_{20}\,\text{Any Home Stressor} + \gamma_{30}\,\text{Any Work Stressor} \\ & + \gamma_{40}\,\text{Any Network Stressor} \\ & + \gamma_{50}\,\text{Any Cutback Activities} \\ & + \gamma_{01}\,\text{Female} + \gamma_{02}\,\text{Age} + \gamma_{03}\,\text{Married} \\ & + \gamma_{04}\,\text{Working} + \mu_0 + r\end{aligned}$$

Where daily negative affect of is a function of an individual-specific intercept parameter, γ_{00}, individual-specific daily predictors (γ_{10}–γ_{50}), and residual error, r. The coefficient for γ_{00} was allowed to vary randomly (μ_0) and was predicted by background characteristics at Level 2 (γ_{01}–γ_{04}).

A similar 2-level model was used to estimate the association between daily cortisol production and provision of support using the below model:

$$\begin{aligned}\text{AUC}_{(\text{CORTISOL})} = {} & \gamma_{00} + \gamma_{10}\,\text{Any Support Provided to a Parent} \\ & + \gamma_{20}\,\text{Any Home Stressor} + \gamma_{30}\,\text{Any Work Stressor} \\ & + \gamma_{40}\,\text{Any Network Stressor} \\ & + \gamma_{50}\,\text{Any Cutback Activities} + \gamma_{60}\,\text{Negative Affect} \\ & + \gamma_{70}\,\text{Wake-up Time Later than Usual} \\ & + \gamma_{01}\,\text{Female} + \gamma_{02}\text{Age} + \gamma_{03}\,\text{Married} \\ & + g_{04}\,\text{Working} + g_{05}\,\text{BMI} + \mu_0 + r\end{aligned}$$

Lastly, to address Aim 3 of exploring whether the pile-up of stressors from other domains on days adult children provided routine support amplified the stress responses, we considered at Level 1 three separate interaction effects for each of the outcomes: (a) Any Support Provided to a Parent Today × Experienced Any Home Stressor Today (γ_{80}); (b) Any Support Provided to a Parent Today × Experienced Any Work Stressor Today (γ_{90}) and (c) Any Support Provided to a Parent Today × Experienced Any Network Stressor Today (γ_{100}).

Results

Sample Characteristics

Table 1 shows the demographic characteristics of the 127 adult children who provided routine support to a parent during the study period. The average age of the participants was 56.27 years (*SD* = 11.79, Range = 34–81 years), with 30% between ages 34 and 49, 43% between ages 50 and 64, and 27% were 65 years and older. A majority of participants were women (61%), Caucasian (93%), married (74%), working or studying (61%), and 39% had at least one child living in the household. Adult children reported assisting a parent on 122 (28%) of the 424 study days. On the total help days, participants provided emotional support on 58 days (48% of support occurrences); instrumental assistance on 54 days (44% of support occurrences) and on 10 days (8% of support occurrences) participants provided both instrumental and emotional support.

Providing Support to Parent Linked With Other Daily Life Stressors

We found an association between days when participants provided support to a parent and stressors in other areas of their lives (Aim 1). Paired *t* test comparisons showed that participants reported significantly more home (t = –2.13), work (t = –2.69), and network stressors (t = –3.03) on days they provided support to a parent compared with days they did not provide support (Table 2). Participants also reported higher negative affect (t = –3.86) and produced a greater amount of cortisol (t = –2.01) on days they provided support to a parent compared to days they did not provide support to a parent.

Daily Negative Affect and Cortisol Output on Days Support Is Provided to a Parent

Our mixed model analysis evaluating the direct relationship of providing support and daily life stressors on daily negative affect indicated four significant predictors (see Table 3). First, participants experienced higher negative affect on days they provided support to a parent (β = 0.04, p = .04). Second, on days participants experienced work stressors, they also reported higher negative affect (β = 0.09, p = .02). Third, on days participants cut back their activities, they reported higher negative affect (β = 0.20, p < .001). Fourth, younger participants reported higher negative affect than older participants (β = –0.01, p = .01). Participants did not report higher negative affect on days they experienced

Table 1. Background Characteristics of Study Sample (*N* = 127)

	M (*SD*)/*N* (%)
Age (in years)	56.27 (11.79)
Female	77 (60.63)
Married	93 (73.23)
Caucasian	118 (92.91)
Currently working/or Studying	78 (61.42)
Educational level	
Some high school	7 (5.51)
Completed high school	27 (21.26)
Some college or Vocational school	42 (33.07)
Completed college	34 (26.77)
Postgraduate degree	17 (13.39)
Any children living in household	50 (39.37)
Body mass index (kg/m^2)	28.01 (5.41)
Average time of waking (hours)	6.75 (1.28)

Table 2. Daily Life Stressors on Days Support to a Parent Was Provided

	On days support was not provided to a parent ($N_{\text{Study Days}}$ = 302)	On days support was provided to a parent ($N_{\text{Study Days}}$ = 122)	
	M (*SD*)	*M* (*SD*)	*t*-statistic
Daily stressors			
Home stressors	0.08 (0.27)	0.15 (0.36)	–2.13**
Work stressors[a]	0.11 (0.31)	0.24 (0.43)	–2.69*
Network stressors	0.05 (0.22)	0.14 (0.35)	–3.03**
Cutback activities	0.06 (0.25)	0.11 (0.32)	–1.66†
Negative affect	0.15 (0.27)	0.28 (0.39)	–3.86**
Total cortisol production (AUC)	139.76 (78.94)	159.77 (120.18)	–2.01*

[a]For participants who were working.
†$p < .10$; *$p < .05$; **$p < .01$.

Table 3. Effects of Daily Parental Support and Other Stressors on Perceived Negative Affect and Cortisol

	Negative affect	Cortisol AUC
	Coeff. (*SE*)	Coeff. (*SE*)
Intercept, γ_{00}	0.21 (0.07)**	4.84 (0.10)**
Daily experiences		
Any support provided to a parent, γ_{10}	0.04 (0.02)*	0.11 (0.04)*
Daily stressors		
Any home stressor, γ_{20}	0.05 (0.03)	0.05 (0.07)
Any work stressor, γ_{30}	0.09 (0.04)*	0.20 (0.07)**
Any network stressor, γ_{40}	0.01 (0.04)	0.04 (0.07)
Any cutback activities, γ_{50}	0.20 (0.05)**	0.08 (0.09)
Negative affect, γ_{60}	—	–0.07 (0.09)
Wake-up time later than usual, γ_{70}	—	–0.11 (0.02)**
Background characteristics		
Female, γ_{01}	0.04 (0.05)	–0.12 (0.07)
Age[a], γ_{02}	–0.01 (0.002)**	0.01 (0.003)*
Married, γ_{03}	–0.06 (0.05)	–0.02 (0.08)
Working, γ_{04}	–0.05 (0.05)	0.06 (0.08)
BMI, γ_{05}	—	–0.02 (0.01)**
Interaction terms		
Any support provided × Home stressor, γ_{80}	0.02 (0.06)	–0.06 (0.13)
Any support provided × Work stressor, γ_{90}	0.01 (0.07)	–0.21 (0.13)
Any support provided × Network stressor, γ_{100}	–0.01 (0.07)	0.12 (0.14)
Variance components		
Between-person variance (Level 2), μ_0	0.24 (0.02)**	0.30 (0.03)**
Within-person variance (Level 1), *r*	0.17 (0.01)**	0.34 (0.01)**
Psuedo-R^2		
Person-level (Level 2)	0.26	0.13
Day-level (Level 1)	0.22	0.12

Notes: AUC = Log-transformed Area under the Curve with respect to the ground; BMI = Body Mass Index.
[a]Group Mean-Centered; Snijders–Bosker *Pseudo* R^2.
*$p < .05$; **$p < .01$.

home stressors or network stressors, but no work stressors or support to a parent. Finally, none of the interaction effects between the provision of support to a parent and other life stressors on negative affect were significant.

Results of our mixed models evaluating the association between providing support and daily life stressors on cortisol output indicated four important relations. First, we found higher cortisol levels on days participants provided support to a parent (β = 0.11, p = .02). Second, cortisol levels were also higher on days participants experienced work stressors (β = 0.20, p = .01). Third, cortisol output was higher in general for older adults (β = 0.01, p = .03).

And last, cutting back activities was not associated with cortisol production. Similar to previous research, waking up later than usual (β = –0.11, p = .001) and higher BMI (β = –0.02, p = .01) reduced cortisol production. The interaction effects between the provision of support to a parent and other daily stressors on cortisol production were not significant.

Discussion

Previous studies have examined the psychosocial implications of providing routine (non-caregiving) support to a parent compared to participating in other family relationships (Fingerman et al., 2016; Polenick et al., 2017). These studies have not, however, examined the impingement of providing support to a parent on other domains of life, including work, family, and friendship networks simultaneously. To build on this literature on intergenerational support to older parents, we drew on a large national diary study to understand whether adding the parent support role to one's repertoire of roles has an additive effect on stressors experienced in other domains of life and has consequences for one's well-being. The findings from this study confirm that providing routine support to a parent compounds stressors experienced in other life domains. Furthermore, the additive effect of providing routine support and experiences of stressors in other domains increases negative affect and elevates cortisol production for adult children, lending support to the caregiving career framework (Pearlin & Aneshensel, 1994) for understanding even these casual roles of ongoing support to a parent.

Stressors in Other Domains of Life on Days Parental Support Is Provided

We first explored stressors experienced in other domains of life on days support was provided to a parent. We found that on support days, adult children experienced greater home stressors, work stressors, and network stressors. On these days, adult children also reported higher negative affect and produced more cortisol. This suggests that providing even trivial support to a parent, which is common among families before the onset of disabilities in the parent, is potent enough to be associated with upsets in other domains of life and strain the adult child's capacities (Kim et al., 2016a; Zarit & Eggebeen, 2002). It may be that tensions around providing support may spill over and lead to stressors in these other domains.

Role Stressors and Stress Indicators

In this study, we measured psychological stress reactivity and physiological stress reactivity by examining daily negative affect and overall cortisol production each day. We found that on days adult children provided support to their aging parents, they reported higher negative affect and produced greater cortisol output. Stressors at work had an independent effect on daily negative affect and cortisol production. None of the other domain stressors prompted greater negative affect or higher cortisol production. These findings demonstrate that stress reactivity was driven by daily work stressors, but to a lesser extent by home stressors or network stressors unlike some observers have suggested (Stawski et al., 2013). It may be that work stressors and provision of support to a parent have some commonalities (Gordon, Pruchno, Wilson-Genderson, Murphy, & Rose, 2011). They both demand time and effort from the adult child, and there may be no other person who can fulfill this demand. In fact, when differential effects of the type of support were explored post hoc, we found only provision of instrumental support to be significantly associated with cortisol output. Furthermore, work responsibilities may be less flexible than home chores, thus elevating emotional strains and stress reactions. Lastly, for some individuals the unpredictable nature of the role (an unexpected deadline, an emergency doctor's visit) may also cause more stress. Future studies should explore the characteristics of work stressors to further understand the circumstances of work stressors and how they interact with the provision of support to a parent.

Contrary to our hypothesis, we did not find evidence of a pile-up effect (i.e., interaction) of a parent support day and other domain stressors on stress reactivity outcomes. One explanation is that in this study adult children are providing occasional support to a parent, not intensive caregiving, and thus the impact on other domains of life may not be as severe. Another explanation comes from the use of coping strategies that individuals may use when dealing with overload. For instance, although cutting back on activities may be one way of reducing one's exposure to stressors, we found that it exacerbated negative affect, though it was not associated with differences in cortisol production. It may be the participants cut back on potentially enjoyable social or leisure activities, which led to increased negative affect.

Limitations and Implications

This study has several limitations. First, the NSDE was not intended to collect data on occasional or chronic caregiving. Therefore, information regarding the extent of support, parent's health condition, and whether the provision of support was a scheduled visit versus an unscheduled drop-in, was not collected. Moreover, the low rates of occurrence of support to parents made it difficult to test the effects of each type of routine assistance separately. Additionally, providing help to a parent versus a parent-in-law may have different implications; however, the number of participants was too small to test this possibility. Future studies that focus on support patterns between adults and their parents should incorporate questions to characterize better parents' needs and support provision, and to understand how support processes evolve over time. Support that parents receive from other sources (e.g., paid helpers) should also

be ascertained to get a fuller understanding of the context of support. Lastly, many studies have pointed to the role of intergenerational ambivalence (Lendon, 2017) in understanding transfers between the generations; however, the present study was not able to test ambivalence in support provision.

Despite these limitations, the findings suggest that providing occasional support to a parent is stressful, even after considering stressors from other domains of life. More recently, Freedman, Cornman, and Carr (2014) found that providing help with routine chores was more unpleasant for women than hands-on caregiving. Families may benefit from greater access to practical help services such as grocery deliveries and home repair services for the elderly. Flexible work policies would also relieve some of the pressures that adult children may feel as their parents age.

Conclusion

Our findings demonstrate that adult children face multiple demands on their time, such that stressors in one area may potentiate stressors in another. This does not mean elders will not receive the support they need from their adult children, but it does increase the potential burden on the adult children providing support. Given the changing demographics, it is imperative to understand the psychological and physiological consequences for adult children who combine roles of support to the older generation and responsibility for other life domains, as well as identify resources for older adults such that they can continue to live independently in their communities.

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