ORIGINAL ARTICLE

Work as overload or enhancement for family caregivers of older adults: Assessment of experienced well-being over the day

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Abstract

Objective: This study examines work and care patterns and their association with experienced well-being over the course of the day and tests a moderating effect of gender.

Background: Many family and unpaid caregivers to older adults face dual responsibilities of work and caregiving. Yet little is known about how working caregivers sequence responsibilities through the day and their implications for well-being.

Method: Sequence and cluster analysis is applied to nationally representative time diary data from working caregivers to older adults in the United States collected by the National Study of Caregiving (NSOC) ($N = 1005$). OLS regression is used to test the association with well-being and a moderating effect of gender.

Results: Among working caregivers, five clusters emerged, referred to as: Day Off, Care Between Late Shifts, Balancing Act, Care After Work, and Care After Overwork. Among working caregivers, experienced well-being was significantly lower among those in the Care Between Late Shifts and Care After Work clusters relative to those in the Day Off cluster. Gender did not moderate these findings.

Conclusion: The well-being of caregivers who split time between a limited number of hours of work and care is comparable to those who take a day off. However, among working caregivers balancing full-time work—whether day or night–with care presents a strain for both men and women.

Implications: Policies that target full-time workers who are balancing care for an older adult may help increase well-being.

INTRODUCTION

An estimated 40 million family members or other unpaid caregivers in the United States provide help annually to older adults living with activity limitations, including helping with self-care, household, and medical tasks (Freedman & Wolff, 2020). In the coming decades, America's aging population is expected to put increasing pressure on family members to make time for eldercare-related activities (Schulz & Eden, 2016). By 2030, the number of older adults is projected to comprise 19.3% of the U.S. population, up from 13.0% in 2010 (Vincent & Velkoff, 2010).

Roughly half of all caregivers providing assistance to older adults also work, and many do so full-time, potentially "squeezing" caregivers between work and family demands (Pavalko, 2011; Schulz, 2020; Schulz & Eden, 2016). Working caregivers may be further disadvantaged in the U.S. context by both high long-term care costs that prohibit wider access to paid care services and by incentives that may lock in workers to jobs to maintain access to healthcare benefits (Schulz, 2020; Schulz & Eden, 2016). Moreover, in the United States, public and private policies designed to help families balance the two commitments have been relatively limited in scope, and policies such as the Family Medical Leave Act (FMLA) do not apply to all workers and are typically unpaid (Schulz, 2020; Wolff et al., 2019).

Despite the substantial number of working caregivers to older adults, most time diary research on work-care balance focuses on working caregivers to young children (Hansen & Slagsvold, 2015; Kolpashnikova & Kan, 2020). Thus, how work and eldercare responsibilities (i.e., care for an older adult) are balanced is not well understood, especially over the day (Burch et al., 2019; Clancy et al., 2020). Recent studies have pointed to a connection between eldercare and momentary well-being as it is experienced over the day as opposed to appraisals over a longer period of time (Freedman et al., 2019; Kolpashnikova & Kan, 2020; Lam & Garcia-Roman, 2017). For instance, using the American Time Use Study, He and colleagues have found that caregivers have lower rates of experienced well-being than non-caregivers (He et al., 2018). Time diary analyses allow us to understand not only how employment itself matters for caregiver well-being, but also how combinations and sequencing of care during the day may be especially influential on well-being among working caregivers. Caregiving for an older adult is often perceived as more stressful than childcare (Hammersmith & Lin, 2019) and may occur at different points during the day and in short increments; this patterning of care may in turn affect well-being (Freedman et al., 2019). However, with a few exceptions, the effect of balancing work and eldercare on emotions experienced over the day has not yet been a main focus of the work-care literature.

Notably, the time devoted to work and caregiving is not gender-neutral (Sayer, 2005; Sayer et al., 2016). Women continue to be more likely than men to provide care for older adults overall (Lam & Garcia-Roman, 2017; Wolff et al., 2016) and across the life course (Ophir & Polos, 2021; Patterson & Margolis, 2019). At the same time, rates of employment for women in the United States have increased and now approach those of men in some instances (Roberts et al., 2018; Schulz, 2020). Although a large meta-analysis indicates small to no gender differences in the association between providing care for an older adult and well-being outcomes (Pinquart & Sörensen, 2006), gender differences in well-being as it relates to work-eldercare balance are limited to a few studies and results are mixed.

In this article, we rely on novel time use data from the National Study of Caregiving (NSOC) to establish patterns of work and care across a 24-h time period for caregivers of older

adults in the United States. Unlike typical national time diary studies, NSOC is unique in that it is linked to a study of older adults, the National Health and Aging Trends Study (NHATS). Consequently, together NHATS and NSOC provide descriptive detail on both the caregiver and the care recipient that may be linked to a caregiver's 24-h time diary. We use sequence and cluster analysis to test whether balancing caregiving and work over the day results in strained or enhanced experienced well-being. We focus mainly on differences among working caregivers. We test whether different approaches to sequencing work and care over the day yield overload or enhancement among those who identify as having dual roles of work and care. Then, we compare the well-being of those who identify as working caregivers with those who identify as non-working caregivers who did not provide care to test if dual role identities, rather than time use per se, account for well-being differences. Because of the large and persistent gendered patterns of care for older adults, we also consider the moderating effects of gender on the relationship between balancing work and care over the day and experienced well-being.

Care to older adults and work in the U.S. context

Caregivers can be of any age; however, working-aged adults are the most likely to be providing care to older family members (Dukhovnov & Zagheni, 2015; Freedman & Wolff, 2020; Ophir & Polos, 2021; Patterson & Margolis, 2019). Even if not currently a caregiver, most people can expect to provide care to an older adult at some point in the future. For instance, adults ages 40–49 can expect to spend, on average, almost 5 years over their lifetime caring for an older adult with activity limitations including personal care (e.g., bathing, eating) or household activities (e.g., grocery shopping, helping with bills and banking) (Schulz & Eden, 2016). Importantly, eldercare providers are more likely to be employed than adults who are not providing eldercare (Aughinbaugh & Woods, 2021). Demographic characteristics, including age, race/ethnicity, and education, as well as the relationship to the care recipient (e.g., spouse/partner vs. adult child), may influence how caregivers engage in and balance work and care over the course of a day (Aughinbaugh & Woods, 2021; Schulz, 2020; Schulz & Eden, 2016).

Gender may be an especially important characteristic to consider in relation to combining work and care. Both men and women are increasingly working into older ages and women's labor force participation has been increasing steadily across cohorts (Roberts et al., 2018). Because care rates are highest during ages when labor market earnings are at their peak, combining work and care can potentially have a substantial impact on caregivers' economic well-being. For instance, caregiving for an older adult can lead to missing work (Schulz, 2020), resulting in foregone earnings which in turn could potentially increase the risk of poverty or financial difficulty for caregivers. Research suggests that these costs may total an estimated $67 billion per year (U.S. dollars; Mudrazija, 2019).

Combining work and care: Overload versus enhancement

One theoretical stream of the care and work literature focuses on the overload and strain caused by combining both caregiving and working identities and corresponding time demands. Identities, like that of worker or caregiver, dictate patterned social behavior and therefore influence the social scripts or expectations for behavior for those assuming the role. The ideal worker norm dictates, for example, that workers should be committed to their job responsibilities above all else (Kanter, 1993). This internalized norm may be difficult to overcome even in supportive workplaces and social environments (Haas & Hwang, 2019).

Strain may also emerge when there is "felt difficulty" in being able to fulfill the day-to-day obligations associated with multiple role demands (Goode, 1960, p. 483). Stress may arise due

to a scarcity of time resources available to fulfill the activities associated with both care and work (Marks, 1977; Mui, 1995; Sieber, 1974). Since each day is bounded by 24 h and inflexible work schedules may create further boundaries on the ability to provide care (Bianchi, 2011; Clawson & Gerstel, 2014; Flood et al., 2018), working caregivers may attempt to adjust by sequencing competing duties either across or within days.

A competing theoretical stream in the work and care literature focuses on how working, in addition to caregiving, may serve as an enhancement, or even a "haven" or respite, when balancing roles. Like the strains discussed previously, these positive effects may be related to the benefits of having multiple identities or to the time-related breaks from caregiving allowed by work. For example, having dual role identities may yield emotional gratification (Sieber, 1974), including support from coworkers. Dual roles may confer greater security and sense of purpose in life, even if the time devoted to a given role is minimal (Marks, 1977; Thoits, 1983). In addition, working may enhance a caregiver's social status, since work is highly valued and caregiving is undervalued in the United States (Folbre, 2002). Sequencing work with care on a given day may allow for a respite from care responsibilities—a time when one is not responsible for ensuring the well-being of another (Utz et al., 2012).

Work, care, and well-being: empirical findings

A large body of research has documented caregiving-related strains, including worse self-reported appraisals of well-being, higher biological markers of stress, and lower experiential well-being as measured over the day (Bangerter et al., 2018; Freedman et al., 2019; Pinquart & Sörensen, 2003). Empirical findings regarding working caregivers have been more limited in scope, with mixed results. Some studies point to increased stress or negative emotional health among working caregivers (J. A. Lee et al., 2001; Lilly et al., 2007), with caregivers who experience more demanding work and care situations more likely to experience strain (Fredriksen & Scharlach, 1999). Other studies provide evidence consistent with work as an enhancement. For example, a large study found that employed caregivers have better well-being compared to non-employed caregivers (Coughlin, 2010). In a qualitative study, when asked what kind of activities are helpful for respite, non-employed caregivers mentioned household tasks or visiting with friends, while employed caregivers mentioned employment or work (Utz et al., 2012). Work as enhancement is also supported in studies of working parents using biological data to measure stress (Damaske et al., 2014); whether these findings are generalizable to eldercare however, is less clear, given differences in well-being associated with care to older adults compared to childcare (Hammersmith & Lin, 2019).

Some scholarship, however, finds no support for either theoretical stance. A variety of studies with various samples, including working parents, older caregivers, and women caregivers, find no association between psychological well-being and whether work is combined with caregiving (Brown & Booth, 2002; Hansen & Slagsvold, 2015). In a recent, qualitative study of both employed and non-employed caregivers for older adults, Bowes et al. (2020) find that participants have both positive and negative experiences of combining caregiving with other activities during the day.

The rhythm of work and care activities over the day

To date, research has mainly addressed theories about the positive or negative consequences of taking on multiple roles by contrasting the experiences of employed and non-employed caregivers. Yet, well-being may also be influenced by how working caregivers spend their time over the course of the day. That is, the sequence in which work and care activities are ordered

(e.g., work then care; care then work; or more back and forth) and timed (e.g., 2-h in the morning, 1-h mid-day, 2-h in the evening) may shape well-being during the day. For instance, working caregivers who work a full day and then provide care in the evening may be more strained than those providing a few hours of care in the morning before working a limited number of hours in the afternoon. Capturing sequence-related distinctions allows for exploration of the rhythm of daily life for working caregivers to older adults.

Moreover, a few studies suggest that such differences *among* working caregivers may be more salient than those *between* working and non-working caregivers. Lee et al. (2001), for instance, found that emotional health did not differ between employed and non-employed caregivers, but among employed caregivers, those providing more hours of care had worse emotional health. Similarly, a study using longitudinal data from Australia found that part-time elder caregivers had better scores on work-life balance satisfaction than full-time workers (Cheng et al., 2020) and a study of Norwegian caregivers found better psychological well-being for women who worked full-time compared to those with more limited employment (Hansen & Slagsvold, 2015). However, studies that identify working caregivers' distinctive approaches to ordering and timing of activities throughout the day and implications for well-being during the day have been lacking.

Similarly, well-being measures have mainly focused on global assessments of satisfaction or emotions over a broad time period such as several weeks or the last month. A growing body of evidence suggests that global, decontextualized appraisals of well-being differ from emotions experienced during the day (Flood et al., 2018; National Research Council, 2013). Time diary-based measures of time and experienced well-being may provide a more accurate measure of both time and well-being costs of work and care as they are experienced in the moment (McDonnell et al., 2019) and therefore allow more nuanced tests of work-care sequencing and related theories regarding work as overload or enhancement (Barnett & Hyde, 2001).

Gender and the work and care nexus

Women are the main kinkeepers, often providing care for other members (Bracke et al., 2008; Folbre, 2002). Indeed, women in the United States continue to be the main providers of care for older adults (Freedman & Wolff, 2020; Wolff et al., 2016), at the same time that they have increased their rates of work (Pavalko & Wolfe, 2016). As more women have entered the labor force over time, they may have also internalized the ideal worker norm (e.g., that one should be completely devoted to their job above all else) that has been historically so normalized for men (Kanter, 1993; Patterson et al., 2017).

Men's roles as caregivers are shifting as they have increased their participation in these duties within each successive cohort (Lopez-Anuarbe & Kohli, 2019; Russell, 2007). Men also generally are more likely to provide care as they age (Kahn et al., 2011; Patterson & Margolis, 2019). However, the research on well-being for men who are caregivers is limited (Lopez-Anuarbe & Kohli, 2019; Russell, 2007), as are studies of how men balance eldercare and work responsibilities (Patterson & Arche, 2021; Schulz, 2020).

Irrespective of work status, caregiving is more often associated with negative well-being for women than men (Pavalko & Woodbury, 2000; Ruppanner & Bostean, 2014), although some studies find poor outcomes for men as well (Lopez-Anuarbe & Kohli, 2019). Gender gaps in well-being related to combining work and care are mixed or effects are negligible (Glauber & Day, 2018; Pinquart & Sörensen, 2006). Reflecting gender differences in labor force attachment irrespective of care demands (Y. Lee & Tang, 2015), there is evidence that women and men respond differently to having dual work and care responsibilities: women are more likely to reduce their work hours (van Houtven et al., 2013) whereas men may be more likely to exit the labor force (Heger & Korfhage, 2020). Time-use studies with parents who engage in childcare

activities show that work adds stress for women but reduces stress for men (Roeters & Gracia, 2016), but parallel studies of eldercare have been lacking. As the gender gap in paid and unpaid work has shrunk over time (Sayer, 2005; Sayer et al., 2016), it is possible that gender differences in the effects of combining work and care on well-being may be attenuated. However, few studies have explored this question regarding the balance of eldercare and work over the course of a day. Because findings are mixed, it is not clear in which direction gender may operate, but given women's overall greater likelihood of providing care, we expect that combining work and care may be more of a strain for working women.

Contributions of this study

Using novel time diary data from NSOC, we examine whether combining work and care over the course of a day overloads or enhances well-being. We contribute to the literature in three main ways. First, we use sequence and cluster analysis to characterize combinations of work and care over the day among working caregivers to older adults in the United States. Few studies, to our knowledge, have charted the balance of work and eldercare in this way and none that we could identify have done so for the U.S. context (for an exception from Japan, see Kolpashnikova & Kan, 2020). Sequence analysis lends itself to studying how activities–in this case, work and care versus all other activities–are ordered and timed over the 24-h day (Lesnard & Kan, 2011). Unlike other longitudinal statistical methods, the approach preserves information about the order of activities and their timing and, with cluster analysis, allows the classification of individuals into relatively homogenous groups who share a similar sequence of activities. Second, we examine predictors of work and care clusters, with particular attention to gender differences, to advance our understanding of how gender may moderate profiles defined by sequencing of work and care over the day. Third, we investigate the link between work and care clusters and experienced well-being using a validated measure of well-being (Lucas et al., 2019), and formally test gender as a moderating factor. This final contribution allows a formal test of whether differences in the sequencing of work and care activities contribute to overload or enhancement. We also test for a "role-effect" of working by contrasting the well-being of non-working caregivers who did not care yesterday with our working caregiver groups.

DATA AND METHODS

We use the National Study of Caregivers III (NSOC) and its time diary supplement, collected in Round 7 (2017) of the National Health and Aging Trends Study (NHATS) (www.nhats.org) (Freedman & Cornman, 2019). NHATS is a nationally representative study of Medicare beneficiaries ages 65 and older; because the NHATS sample age as the survey progresses, the sample is representative of older adults ages 67 and older in 2017. The study is sponsored by the National Institute on Aging (Grant Number NIA U01AG032947) through a cooperative agreement with the Johns Hopkins Bloomberg School of Public Health (www.nhats.org).

In 2017, NHATS participants who reported receiving help with mobility, self-care, or household activities due to their health or functioning in the last month were flagged as NSOC-eligible. Family and unpaid helpers were then considered eligible to be interviewed if they assisted with mobility, self-care, household activities, money matters, medical activities, or transportation either in the last month or in a previous round of NSOC.

At the end of the NSOC III interview, respondents who provided help to a living NHATS participant in the last month were asked to complete a time-diary follow-up interview by telephone. The diary covered a 24-h period, from 4:00 am on the previous day until 4:00 am the day of the interview. For each activity, the respondent reported what they were doing, for how

long, where they were, with whom they did the activity, who else was there, and for household and care activities—for whom the activity was carried out. After the diary was completed, (up to) three activities were randomly selected and respondents were asked detailed questions about how they felt while completing these activities. The time diary interview had an 82% response rate (Freedman & Cornman, 2019).

Out of 2136 caregivers who completed a diary, 1005 reported being a worker which we define as whether the caregiver worked in the last week, owned a business, was absent from a job last week, or worked in the last month. Because we are interested in understanding well-being among adults who have both a worker and a caregiver identity, our main analytic sample consisted of working adults who were caregivers for an older adult ($N = 1005$). In additional analysis, we included both working and non-working caregivers ($N = 2134$). Missing values were rare in NHATS and NSOC (e.g., age of caregiver was missing for 2.2%), so we replaced any missing data with the modal or mean category to maximize sample size. For details on sample selection, see the Figure A1.

Dependent variables

Experienced well-being was assessed during the time diary interview for three randomly selected diary activities. For each activity, respondents reported intensity of feelings regarding seven emotional states: calm, happy, sad, frustrated, worried, stressed, and tired. The scale ranged from not at all (0) to very strong (6). We used responses to create a validated composite measure of well-being. To do so, we averaged each of the emotions over the three activities, reversing the coding for negative emotions so that overall a higher score reflected better well-being; we then combined each emotion into a single score (Cronbach's alpha = 0.87). Because we are not interested in individual emotions (see Y. Lee et al., 2016 regarding use of individual emotions), rather whether work can be seen as an overall well-being enhancement or overload, we use the summary score similar to other work on time use and eldercare (Freedman et al., 2019). A single index has been validated and deemed reliable as a reflection summary of time-diary participants' well-being (Y. Lee et al., 2016; Lucas et al., 2019).

Independent variables: time use

We considered only the main activities in our categorization of time use from the time diary. Secondary activities (defined as activities carried out at the same time as the main activity but not the primary focus of the respondent) were relatively rare (<5% of main activities also had a secondary activity) and did not have details about for whom the activity was carried out.

Work time was defined as participating in any of the following activities on the prior day: (1) working in a main job or other job, (2) leisure activities at work, (3) computer/online work for main job, (4) travel related to work, (5) waiting/watching related to work, and (6) work related activities not specified. Time spent in any work activity was summed for the 24-h period. This coding is consistent with other time use studies that consider auxiliary activities (i.e., travel) as part of the work contract (Flood et al., 2018).

Care time was defined using a series of activities that the caregiver did for the older adult in NHATS. This measure does not include care for anyone else other than the NHATS participant; see control variables section. The care recipient in NHATS is an older adult age 67 or older (e.g., a partner/spouse, parent, grandparent, or other older adult). Care tasks include: (1) household activities (e.g., meal preparation, laundry, indoor/outdoor cleaning, home repairs, shopping) done for the care recipient; (2) physical or medical care provided to the care recipient; (3) visiting or socializing with the care recipient, and (4) transporting or waiting for the care

recipient. These categories were chosen because they are the most common types of caregiving activities for older adults (Freedman & Wolff, 2020). We summed for the 24-h period time spent in any care activity.

All other activities were coded as non-work/non-care time. Examples included: sleeping, washing and grooming oneself, eating and drinking, educational activities, household activities for someone other than the care recipient, and other active and non-active leisure activities.

Control variables

We controlled for a series of caregiver and care recipient characteristics that we expected to be associated with caregiver well-being (Pinquart & Sörensen, 2003). Caregiver characteristics included whether the caregiver was: female, their age (under 45, 45 to 64, and 65 and older), had a bachelor's degree or higher, race and ethnicity (non-Hispanic White, non-Hispanic Black, Hispanic, and non-Hispanic other), and had any children ages 18 or younger. We also controlled for aspects of the time diary interview including whether it was administered about a weekend day (versus a weekday) and whether the caregiver reported that yesterday, the diary day, was a typical day ("Yesterday was a typical day (weekend day/weekday)"; *strongly agree* to *strongly disagree*). To control for aspects of the caregiving situation, we included whether the respondent was the only caregiver for the older adult and whether the caregiver reported providing care for someone else in addition to the NHATS participant (e.g., a child or another adult). We also control for the quality of the relationship with the care recipient as reported by the caregiver, a summary of questions regarding whether the caregiver enjoys being with the recipient, whether the recipient argues with the caregiver, whether the recipient appreciates the caregiver, and whether the care recipient gets on the caregiver's nerves (items all coded so that a higher score reflects better relationship quality). Because most care recipients co-resided with their spouse, we combine co-residence with information about the relationship of the care recipient to the caregiver as follows: spouse, co-resident parent, non-coresident parent, other (all other types of care recipients, e.g., grandparent, neighbor, etc.). We also controlled for characteristics of the care recipient, including: their age, whether they had probable dementia (using a validated measure, see Kasper et al., 2013), and whether they received any assistance with self-care (e.g., bathing, eating, dressing, toileting) or mobility (getting out of bed, getting around inside, getting outside) limitations as a measure of care need intensity. Finally, we controlled for work characteristics of the caregiver including whether they worked a daytime schedule ("Do you usually work a daytime schedule or some other schedule?") and whether they had a flexible work schedule ("Do you have flexible work hours that allow you to vary or make changes in the time you begin and end work?"). Descriptive statistics for caregivers, by whether they provided care or worked on the diary day, are provided in Table A1, and descriptive statistics by worker status are available in Table A2.

Sequence analysis

Time use studies are distinctive in their ability to characterize how working caregivers balance their daily life (Chenu & Lesnard, 2006). We grouped working caregivers into types by work and care activity using sequencing and clustering analysis (Abbott & Tsay, 2000). We use sequence analysis because it preserves the order in which work and care activities occur over the course of the day, so that transitions made from work to care and vice versa can be captured, in addition to the timing of such activities during the day. Sequence analysis confers the additional benefit of effectively characterizing signature patterns even with relatively thin sample sizes.

We first created a sequence of activities for each respondent by following common practice in the time use literature of dividing the diary day into 15-min segments (Freedman et al., 2019; Kolpashnikova & Kan, 2020). This type of aggregation helps offset some of the measurement error inherent in minute level reports and also facilitates estimation by reducing the number of segments per day from 1440 (min) to 96 (15-min segments). We then created an indicator as to whether a care, work, or other type of activity occurred during the segment. If more than one type of activity occurred during a segment (2.8% of segments; 0.9% with both care and work as the main activity in the same segment), we chose the activity with the longest duration during the segment.

We then performed a sequence analysis by comparing each observed sequence of activities to every other observed sequence and calculating the shortest or minimal distance between sequences using optimal matching (Abbott & Tsay, 2000). The distance between two sequences was calculated by summing the changes that need to be made (also referred to as "costs") to make two sequences the same. We specified two types of costs, with values assigned based on theoretical considerations: (1) substitution costs (how different were activities occurring at the same time) and (2) insertion–deletion costs (how different were the times at which the same types of activities occurred). Because our focus was on caregiving and work, we specified substitution between work or care activities and other activities more costly (i.e., a bigger difference) than substitution between work and care (assigned a value of 4 vs. 2). We also set the insertion–deletion cost low relative to the substitution cost (assigning a value of 1) so preference was given to preserving the type of activity over the exact time of day in calculating distance. Prior work with a sample of caregiver time diaries found that setting the insertion–deletion costs higher relative to substitution did not alter substantive findings (Freedman et al., 2019); we explored alternative cost matrix assumptions in sensitivity analyses.

We then performed a hierarchical cluster analysis using these distance measures in order to group the sequences into clusters, which we refer to as work/care types. We reviewed a plot of grouped distances based on the main branches of the clustering dendrogram (see Figure A2; similar process to Kolpashnikova & Kan, 2020). We also examined fit statistics using a Duda–Hart index, which uses information from the hierarchical cluster analysis that we performed, and retained the five-cluster solution (see Table A3). We reviewed plots of individual-level sequences for both solutions and corresponding sample sizes for each cluster. We named the groups based on the patterns of work and care combinations from the individual-level sequence plots across the day.

Analytic approach

Using the sequence and cluster analysis results for the sample of working caregivers, we graphed aggregate tempograms to illustrate the percentage engaged in work, care, and another activity by time of day (using 15-min increments), overall, and for each work/care cluster. Aggregate tempograms describe the distinct characteristics of each cluster *after* it is formed, and are useful for comparing differences in patterns of time use across groups (Lesnard, 2006). We then plotted minutes of work and care and mean experienced well-being scores for each of the work/care clusters. We then estimated a series of multinomial logistic regression models, with clusters as the outcome. Finally, we ran a series of nested ordinary least squares (OLS) regression models to test the association between cluster membership and experienced well-being, first with all controls and second with all controls plus interaction terms for clusters by gender. We first estimated the OLS regressions using working caregivers in order to compare outcomes among the five work/care clusters. The group with the fewest work and care activities was selected as the reference category because we are interested in understanding how the addition of work during the day affects well-being. In addition, we re-estimated the models

including non-working caregivers, with those who did not provide care yesterday as the reference group, to compare each work/care cluster to the experience of non-working caregivers. See the Table A4 for additional analyses with alternative reference groups. All estimates were weighted using the time diary weight provided by NSOC and standard errors were adjusted to take into account the complex survey design of NSOC, including the inclusion in the sample of multiple caregivers per care recipient (Freedman & Cornman, 2019).

RESULTS

The percentage of caregivers who worked rose rapidly in the morning hours, stayed stable over the day (except for a slight dip around the lunch hour), and declined in the evening starting around 4 p.m. (see Figure 1). The percentage of the sample providing care gradually rose over the day and then declined starting around 6 p.m., tapering off into the night hours. The percentage of the sample working peaked around 9:30 a.m. whereas caregiving peaked around 4:30 p.m.

Using sequence analysis, we identified five work/care clusters among working caregivers, which we illustrate using the tempograms shown in Figure 2 and describe as follows. *Day Off (N = 389)*: Working caregivers in this group did not work or provided only light care on the prior day, hence we refer to this group as having a "Day Off" day. These employed caregivers comprised the largest cluster in the sample (41.2%), and provided care sporadically throughout the day with a small peak at 11 a.m. The size of this cluster was similar to other work that finds 40% of caregivers ages 60 and older provided marginal care during a time diary (Freedman et al., 2019). *Care Between Late Shifts (N = 52)*: The second cluster consisted of a relatively small group of working caregivers (4.4%). This group worked late in the day, with work peaking between 9 and 11 p.m. and care peaking around 6 p.m. and again at 11 p.m. We labeled this group the "Care Between Late Shifts" because care appeared to occur in between work shifts, with those work shifts taking place later in the day and for some into the early morning. *Balancing Act (N = 247)*: One in five caregiver's (19.7%) time use pattern over the day indicated a balance between work and care over the morning hours until about 11 a.m. when work declined but care responsibilities increased and peaked at 2 p.m. and then declined over the course of the evening. This group also had a more even distribution of work and care throughout the day, hence the title "Balancing Act." *Care After Work (N = 270)*: Nearly one-
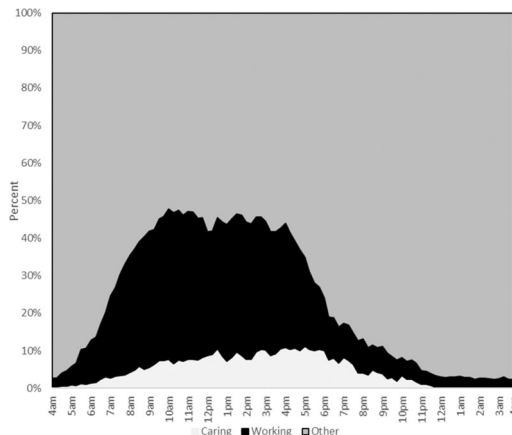
FIGURE 1   Percent working or caring yesterday by time of day: 15 min increments. *N* = 1005.
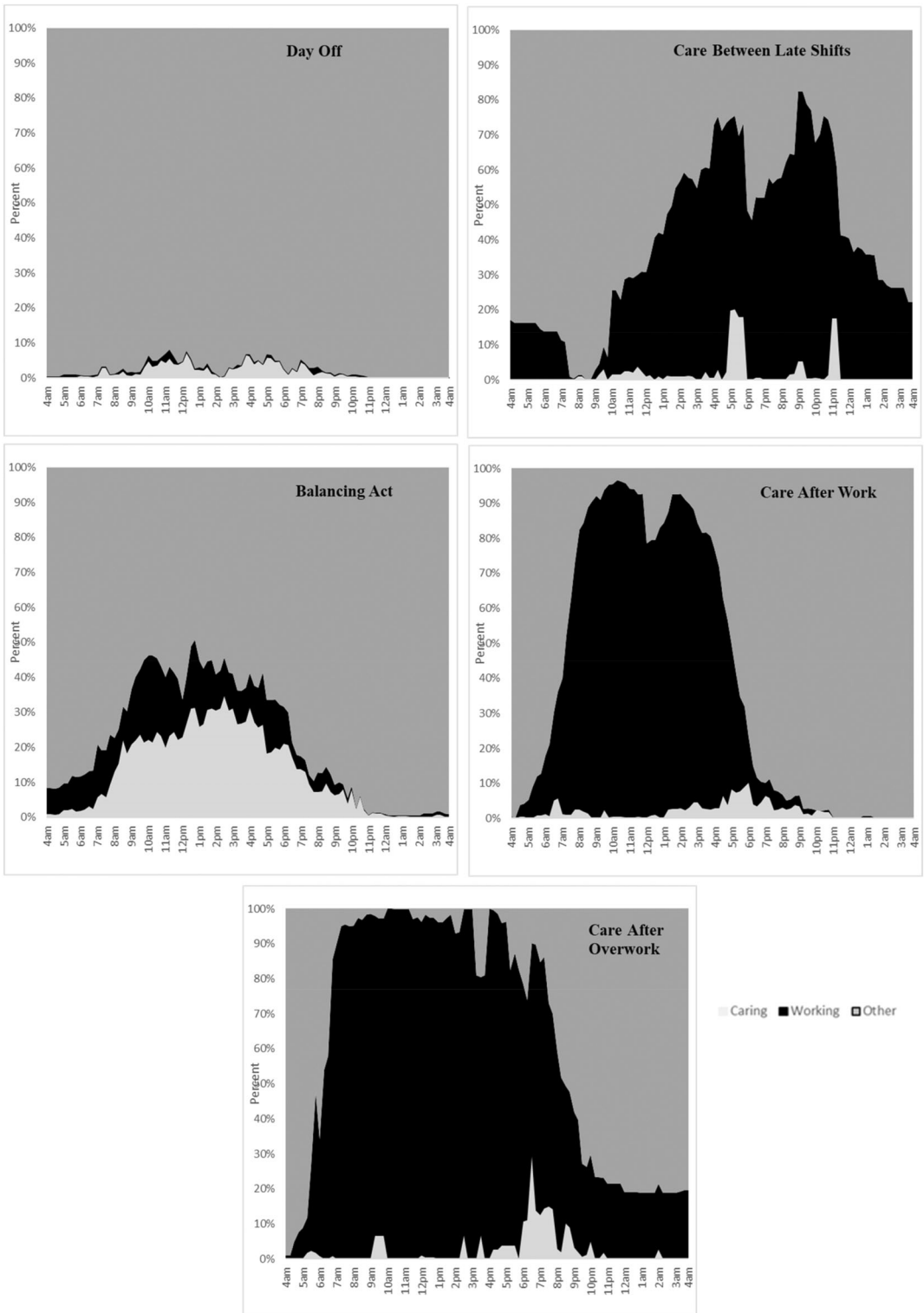
FIGURE 2 Percent working or caring yesterday by time of day: 15 min increments, by cluster. Sample size and weighted proportion for each group: Day Off ($N = 389$; 41.2%); Care Between Late Shifts ($N = 52$; 4.4%); Balancing Act ($N = 247$; 19.7%); Care After Work ($N = 270$; 29.3%); Care After Overwork ($N = 47$; 5.5%).
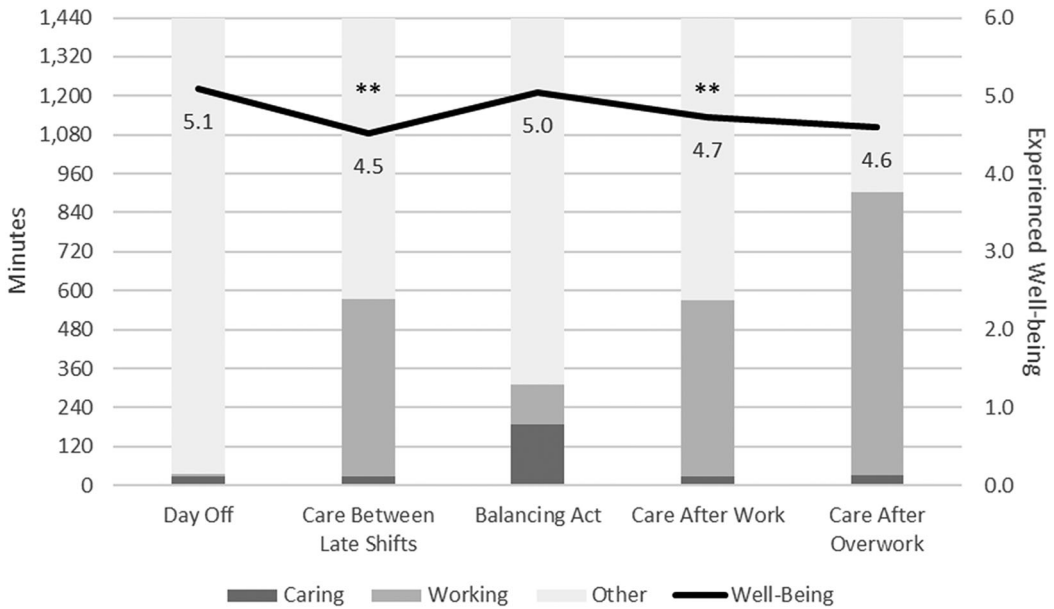
FIGURE 3 Well-being and time spent working and caring by cluster type. *T*-test for difference from day off (Cluster 1) well-being (black line) significant at *$p < .05$; **$p < .01$; $p < .001$. Sample size and weighted proportion for each group: Day Off ($N = 389$; 41.2%); Care Between Late Shifts ($N = 52$; 4.4%); Balancing Act ($N = 247$; 19.7%); Care After Work ($N = 270$; 29.3%); Care After Overwork ($N = 47$; 5.5%).

third of caregivers (29.3%) fell into this group. Work took place during what are considered standard hours: rates rose sharply around 8 a.m., held steady until 11:30 a.m., then stayed high but lowered slightly into the afternoon hours, with a sharp decline between 5 and 6 p.m. Most care occurred after work hours from 5 to 9 p.m. *Care After Overwork (N = 47)*: This cluster of working caregivers represents 5.5% of the sample. Work steadily increased throughout the day, starting between 6 and 7 a.m. and tapered off between 8 and 10 p.m., with a sizable portion working after 10 p.m. Most care provision took place between 4 and 10 p.m.

Time and well-being vary between the five clusters as illustrated in Figure 3. Day Off caregivers provided an average of 28 min of care and, on average, worked a negligible amount (5 min) on the prior day. Day Off caregivers reported, on average, the highest experienced well-being (5.1 of 6) out of all five working caregiver groups. Care Between Late Shifts caregivers worked an average of 549 min during non-standard hours and provided minimal care (26 min). This group reported lower experienced well-being (4.5; $p < .01$) relative to the Day Off group. The Balancing Act caregivers spent on average 125 min (~2 h) working and 186 min caregiving (~3 h); they reported similar levels of experienced well-being (5.0) compared to the Day Off cluster. Care After Work caregivers worked 543 min (~9 h) and provided 27 min of care on average. These caregivers reported lower levels of well-being (4.7; $p < .01$) compared to the Day Off cluster. Finally, the Care After Overwork caregivers worked 872 min (over 14 h) and provided 32 min of care. Their well-being was lower (4.6) than (but not statistically different from) caregivers in the Day Off group.

When predicting cluster membership, we found no significant differences in the likelihood of men versus women being in particular clusters (Table 1), relative to the Day Off group; of note, though not significant, women were 37% more likely than men to be in the Balancing Act group. In contrast, several of the control variables predicted cluster membership. Relative to young adults (18–44), late-life caregivers (ages 65+) were most likely to be in the Day Off group ($p < .05$) compared to being in the Care Between Late Shifts, Balancing Act, or Care After

Work groups. Working caregivers who had a bachelor's degree or higher were significantly more likely than those who did not have that degree to be in the Care After Work group compared to being in the Day Off group ($p < .05$). Hispanic working caregivers were less likely than non-Hispanic White working caregivers to be in the Care Between Late Shifts group ($p < .05$). Weekend days were less likely to be reported about and typical days more likely to be reported about by the Care After Work groups, relative the Day Off group ($p < .01$). Caregivers caring for a co-resident parent were significantly more likely to be Care After Overwork than Day Off caregivers ($p < .01$). Caregivers of non-coresident parents were less likely to be in the Balancing Act group relative to Day Off group ($p < .01$), and caregivers for individuals other than one's parents were less likely to be in the Balancing Act or Care After Work groups relative to the Day Off group ($p < .01$, $p < .05$). Care recipient age and cognition also predicted care group membership, with older recipients more likely to have working caregivers in the Balancing Act ($p < .01$) and those with dementia more likely to have working caregivers in the Care After Work group (vs. Day Off) ($p < .05$).

Finally, we estimated a series of models to gain insight into the factors accounting for work/care cluster differences in experienced well-being over the course of the day, and whether gender moderated the associations. We compared differences among working caregivers (relative to the Day Off group; Table 2; Column 1) and among all caregivers (relative to caregivers who do not work and did not provide care yesterday; Table 2; Column 2). As shown in Model 1A, the Care Between Late Shifts and Care After Work groups had significantly lower well-being than the Day Off group whereas well-being for the Balancing Act and Care After Overwork groups were not significantly different from the Day Off group. Additional models alternating the omitted groups (see Table A4) suggested Care Between Late Shifts and Care After Work groups were similar to one another and different from the Day Off and Balancing Act groups. As shown in Model 1B these effects were not moderated by gender (interactions were not statistically significant). Other factors were associated with better experienced well-being in the final model (Model 1A): Black, non-Hispanic and Hispanic caregivers and caregivers with better relationship quality with the care receiver had greater experienced well-being than their counterparts. Among working and non-working caregivers, we find that non-working caregivers who provided care yesterday and Care Between Late Shifts caregivers have lower well-being than non-working caregivers who did not provide care yesterday (Table 2, Model 2A), but these associations are not moderated by gender (Model 2B). In addition, when non-working caregivers are included in the analysis, race/ethnicity, having living children under the age of 18, and reporting about a weekend day and a typical day are associated with well-being.

Sensitivity analysis

We performed a sensitivity analysis to explore the robustness of findings to assumptions about the relative importance of activity versus time in the cost matrix. In this alternative approach, preference was given to preserving the time interval over the type of activity in calculating distance. That is, insertion–deletion costs were set to 2 (higher relative to substitution costs). Like the main analysis, a five cluster solution fit best (Table A5 and Figure A3). Our review of the sequence analysis plots suggested that two clusters—Day Off and Balancing Act remain largely unchanged. But, the Care Between Late Shifts split into smaller Care Between Evening Shifts and Care Between Night Shifts groups and the Care After Work and Care After Overwork combined into one larger group (Care After Work or Overwork). Aggregate tempograms illustrating the percentage engaged in work and care over the day for each group are provided in Figure A4. Despite differences in how some of the groups formed, key conclusions about main effects of work/care type on well-being remained largely intact (Table A6). The well-being effect for the Care Between Night Shifts groups (relative to the Day Off group) was smaller than the

TABLE 1 Relative risk ratios for weighted multinomial logistic regression predicting clusters.

	Cluster (vs. Day Off)			
	Care Between Late Shifts	Balancing Act	Care After Work	Care After Overwork
Caregiver demographics				
Female	0.57	1.37	1.07	0.42
	(0.29)	(0.41)	(0.30)	(0.21)
Age categories (ref: 18–44)				
45–64	0.53	0.69	1.00	1.68
	(0.33)	(0.34)	(0.50)	(1.11)
65+	0.08**	0.26*	0.23*	0.18
	(0.08)	(0.15)	(0.15)	(0.17)
Bachelor's degree or higher	2.03	1.05	1.81*	1.25
	(0.99)	(0.28)	(0.45)	(0.78)
Race/Hispanic ethnicity (ref: White, non-Hispanic)				
Black, non-Hispanic	2.01	1.30	1.01	1.25
	(0.87)	(0.42)	(0.33)	(0.81)
Hispanic	0.06*	0.88	0.81	1.34
	(0.07)	(0.47)	(0.40)	(1.17)
Other, non-Hispanic	1.98	0.85	0.38	0.73
	(0.97)	(0.54)	(0.25)	(0.69)
Any living children under age 18	0.33	0.59	0.68	1.17
	(0.20)	(0.24)	(0.27)	(0.77)
Diary day characteristics				
Weekend day (vs. weekday)	0.43	0.86	0.14**	0.27*
	(0.23)	(0.24)	(0.05)	(0.17)
Was a typical day	2.35	1.28	2.98**	9.80**
	(1.23)	(0.36)	(0.80)	(5.94)
Caregiving situation				
Respondent is only caregiver	1.22	1.49	1.01	1.19
	(0.76)	(0.57)	(0.42)	(0.90)
Respondent cares for others	0.98	1.02	0.98	0.62
	(0.42)	(0.30)	(0.26)	(0.33)
Relationship quality	1.02	0.95	1.01	0.89
	(0.14)	(0.06)	(0.08)	(0.09)
Care recipient's relationship to caregiver (ref: spouse)				
Co-resident parent	2.23	0.32	0.71	9.23*
	(2.43)	(0.19)	(0.51)	(9.99)
Non-coresident parent	1.80	0.11**	0.46	1.73
	(2.02)	(0.06)	(0.28)	(1.53)
Other	1.62	0.09**	0.19*	1.27
	(1.83)	(0.06)	(0.14)	(1.28)

(Continues)

TABLE 1 (Continued)

	Cluster (vs. Day Off)			
	Care Between Late Shifts	Balancing Act	Care After Work	Care After Overwork
Care recipient characteristics				
Age	0.98	1.06**	0.99	0.96
	(0.04)	(0.02)	(0.02)	(0.03)
Has dementia	2.11	1.49	1.75*	1.54
	(1.22)	(0.45)	(0.45)	(0.76)
Received help with any self-care or mobility activity	0.96	1.10	0.84	1.44
	(0.52)	(0.35)	(0.25)	(0.81)
Constant	0.47	0.04	3.65	1.62
	(1.43)	(0.08)	(7.87)	(4.87)
n	1005	1005	1005	1005

Note: $N = 1005$; ref = reference category; Standard errors in parentheses.
*$p < .05$; **$p < .01$.

effect in the main analysis for the Care Between Late Shifts group and was not statistically significant (likely because of smaller sample size). In addition, two moderation effects by gender emerged in the sensitivity analysis; however, in both cases the group effect was not significantly different from 0 for men or for women.

DISCUSSION

Using novel time diary data from a nationally representative sample of U.S. caregivers for older adults, we identified five common ways in which work and care are combined over the day. Four out of 10 working caregivers did not work yesterday. The remaining working caregivers balanced limited work and care over the day (20%), performed care work after daytime, full-time work or overwork (35%), or cared during the day and worked during the evening or overnight hours (4%). Experienced well-being varied for these groups, with the Care Between Late Shifts and Care After Work groups experiencing lower well-being and Day Off and Balancing Act groups experiencing higher well-being. Gender did not moderate these findings. We conclude that among working caregivers, working limited hours on the prior day may result in similar well-being compared to not working on the prior day. Among working caregivers full-time work—whether day or night—appears to present a strain for both men and women.

Our findings reflect studies on balancing work and eldercare that use more global measures and find both positive and negative outcomes from balancing work and care roles (Coughlin, 2010; Fredriksen & Scharlach, 1999). Our findings also mirror the current time use and well-being literature focused on working parents of young children that find mixed results for whether work serves as enhancement or overload (Roeters & Gracia, 2016). Our main results emerge *among* working caregivers according to how they balance work and care for an older adult over the day, but even among all caregivers, caregivers in the Care Between Late Shifts fare worse than their counterparts.

We find support for work as enhancement, in the form of a similar score on well-being during the day, for Balancing Act caregivers relative to the Day Off caregivers and compared to both Care Between Late Shifts and Care After Work caregivers (see Table 2 and Table A4).

T A B L E 2   Regression coefficients for predicted experienced well-being.

	(1) Among working caregivers		(2) Among all caregivers	
	(A)	**(B)**	**(A)**	**(B)**
Care and work cluster				
Not a worker/did not provide care yesterday	n/a	n/a	ref	ref
Not a worker/provided care yesterday	n/a	n/a	−0.22*	−0.44**
			(0.10)	(0.14)
Day Off	ref	ref	−0.02	−0.26
			(0.11)	(0.17)
Care Between Late Shifts	−0.51*	−0.30	−0.49*	−0.48*
	(0.22)	(0.19)	(0.22)	(0.21)
Balancing Act	−0.01	0.07	−0.00	−0.15
	(0.09)	(0.18)	(0.13)	(0.22)
Care After Work	−0.29**	−0.16	−0.27	−0.36
	(0.10)	(0.15)	(0.14)	(0.18)
Care After Overwork	−0.48	−0.45	−0.43	−0.61
	(0.26)	(0.35)	(0.29)	(0.38)
Care and work cluster X gender				
Not a worker/did not provide care yesterday X female		n/a		ref
Not a worker/provided care yesterday X female		n/a		0.31
				(0.19)
Day Off X female		ref		0.36
				(0.18)
Care Between Late Shifts X female		−0.39		−0.13
		(0.41)		(0.42)
Balancing act X female		−0.12		0.22
		(0.20)		(0.22)
Care After Work X female		−0.20		0.12
		(0.18)		(0.19)
Care After Overwork X female		0.01		0.31
		(0.48)		(0.50)
Caregiver demographics				
Female	0.00	0.10	0.01	−0.22
	(0.09)	(0.11)	(0.06)	(0.14)
Age categories (ref 18–44)				
45–64	−0.09	−0.08	−0.11	−0.11
	(0.11)	(0.11)	(0.10)	(0.10)
65+	−0.04	−0.05	−0.02	−0.03
	(0.13)	(0.13)	(0.12)	(0.12)
Bachelor's degree or higher	−0.05	−0.05	−0.13	−0.13
	(0.08)	(0.08)	(0.07)	(0.08)
Race/Hispanic ethnicity (ref White, non-Hispanic)				
Black, non-Hispanic	0.22*	0.22*	0.15*	0.15*
	(0.09)	(0.09)	(0.07)	(0.07)
Hispanic	0.27**	0.29**	0.30**	0.32**
	(0.10)	(0.10)	(0.08)	(0.08)

(Continues)

TABLE 2 (Continued)

	(1) Among working caregivers		(2) Among all caregivers	
	(A)	(B)	(A)	(B)
Other, non-Hispanic	0.16	0.16	0.09	0.09
	(0.17)	(0.17)	(0.14)	(0.14)
Any living children under age 18	−0.21	−0.20	−0.26*	−0.26*
	(0.11)	(0.11)	(0.11)	(0.11)
Diary day characteristics				
Weekend day (vs. weekday)	0.17	0.18*	0.22**	0.22**
	(0.09)	(0.09)	(0.06)	(0.06)
Was a typical day	0.05	0.05	0.16*	0.17*
	(0.07)	(0.07)	(0.07)	(0.07)
Caregiving situation				
Respondent is only caregiver	−0.04	−0.04	−0.23	−0.24*
	(0.11)	(0.11)	(0.12)	(0.11)
Respondent cares for others	−0.11	−0.10	−0.15	−0.15
	(0.08)	(0.08)	(0.12)	(0.12)
Relationship quality	0.08**	0.08**	−0.03	−0.02
	(0.02)	(0.02)	(0.10)	(0.10)
Relationship to care receiver (vs. spouse)				
Co-resident parent	−0.08	−0.11	−0.20	−0.21
	(0.15)	(0.15)	(0.12)	(0.12)
Non-coresident parent	−0.12	−0.13	−0.08	−0.08
	(0.14)	(0.14)	(0.11)	(0.11)
Other	−0.01	−0.01	0.05	0.05
	(0.14)	(0.14)	(0.10)	(0.10)
Care recipient characteristics				
Age	0.00	0.00	0.00	0.00
	(0.01)	(0.01)	(0.00)	(0.00)
Has dementia	−0.10	−0.10	−0.15	−0.16
	(0.08)	(0.08)	(0.08)	(0.08)
Received any ADL help	0.02	0.03	−0.01	−0.01
	(0.07)	(0.07)	(0.06)	(0.06)
Work characteristics				
Daytime schedule	0.20	0.19	0.19	0.18
	(0.11)	(0.11)	(0.11)	(0.11)
Flexible schedule	−0.09	−0.09	−0.09	−0.09
	(0.09)	(0.09)	(0.09)	(0.08)
Constant	3.85**	3.80**	3.48**	3.61**
	(0.44)	(0.45)	(0.36)	(0.38)
Observations	1005	1005	2134	2134
R-squared	0.15	0.16	0.16	0.17

Note: Among working caregivers: $N = 1005$; Among all caregivers: $N = 2134$; ref = reference category; Standard errors in parentheses.
*$p < .05$; **$p < .01$.

This finding mirrors other work that finds that part-time elder-caregivers score better on better work-life balance satisfaction than those working full-time (Cheng et al., 2020). This also means that working caregivers, who combine a full-time work schedule on the same day that they care, have lower well-being on that day relative to Balancing Act and Day Off caregivers. This finding holds for those who work during the day or in the evenings and nights. This general pattern of worse well-being also appeared to apply to the Care After Overwork group, but sample sizes may have been too small to detect significant effects for this group. These findings mirror other time-diary studies that find that caregivers express more strain on days that they provide care (Lam & Garcia-Roman, 2017) with the addition of work adding to the overload.

Although most caregivers for older adults in the United States are women (Freedman & Wolff, 2020) and women are more likely to work part-time to balance work and eldercare responsibilities (Glauber & Day, 2018; Pavalko & Woodbury, 2000), we did not find significant gender differences in either work-care clusters or their implications for experienced well-being when accounting for sequencing over the day. These results are surprising given that studies commonly show gender differences in the daily experiences of care between men and women providing care of different types (McDonnell et al., 2019; Pavalko & Woodbury, 2000; Ruppanner & Bostean, 2014). Although some studies have found a gender difference in well-being of caregivers for an older adult, those studies rely on global measures of well-being rather than experienced well-being as it unfolds over the day (Glauber & Day, 2018). We found that late work alongside care responsibilities may be associated with accentuated reductions in well-being for women, but our sample was not of sufficient size to detect significant differences. However, in sensitivity analysis, we do find that the timing of the work/care balance during the day does have negative implications for Balancing Act women's well-being relative to men but neither group is significantly different from zero. These findings warrant future investigation with a larger sample size. Non-significant results could also be attributable to the fact that contemporary cohorts of men are increasing their participation in caregiving or because women who give care and are employed may be a select group (see Pavalko & Woodbury, 2000). Additional research is needed as to whether non-standard work and eldercare responsibilities over the course of the day are more likely to lead to negative experienced well-being for women.

This study has several limitations. Our findings are generalizable to family caregivers of older adults ages 67+ in the United States. Adults younger than 65 living with disability are an important group with unique care needs and more research is needed about the work-care balance of their family caregivers. Nevertheless, our focus on older adults is important because the United States population is aging at the same time there are declines in family size putting downward pressure on caregiver availability (Agree, 2018). Selection is also an issue with any sample of working caregivers, as those with the highest demands may have already left the workforce or altered their work schedule. Our comparison of working and non-working caregivers, however, show few differences between these groups and we find few differences in demographic characteristics between our clusters. Concentrated findings among working caregivers in particular highlights the importance of how those roles are combined over the course of the day, but future work should investigate other factors that may sort working caregivers into these groups. An additional limitation is that in constructing work/care patterns we treat work, care, and "neither" as monolithic categories. Future research should further analyze how different groups of working caregivers emerge and their corresponding characteristics using other methods (e.g., growth mixture models, latent class analyses). Although our attention to both work and care is an advancement (see Kolpashnikova & Kan, 2020), we were not able to investigate whether certain types of care responsibilities (e.g., physical care vs. household responsibilities) or particular work characteristics (e.g., low vs. high wage jobs) are more detrimental than others to well-being. Future research should focus on more nuanced depictions of work and care demands. Our time diary data is also limited to a single day, which does not provide insights into longer term care and work patterns. Future studies should track how working

caregivers may balance dual roles at different points in the life course or at different points in the day or for individual emotions (Lam & Garcia-Roman, 2017).

Despite these limitations our findings contribute to the ongoing theoretical discussion of whether combining care and work is associated with well-being, especially for working caregivers of an older adult. We test competing hypotheses and find mixed evidence, dependent on how work and care is balanced over the day. On the one hand, in support of overload and stress, working caregivers who work full-time—either on a typical day schedule or in the evening/nighttime—have worse well-being than those who did not work or care on the prior day. These findings support the idea that the ideal worker norms present a squeeze on working caregivers who work full-time (Pavalko, 2011). Further, the magnitude of the effect on well-being is slightly worse for Care Between Late Shifts working caregivers, and significant for this group among all caregivers. Non-standard work schedules (e.g., working during the evenings and night hours) are generally more disruptive to family relationships than the standard workday (Presser, 2005).

We also find support for the idea that work can enhance well-being for caregivers of an older adult among those working a limited schedule. The Balancing Act group had similar well-being to the Day Off group (who had the best outcomes), even after accounting for other characteristics. The finding for the Balancing Act group suggests that a "Goldilocks" solution, that being able to balance work and care "just right" (i.e., some work, some care), may lead to better experienced well-being for working caregivers of older adults. These time diary results also contribute to a growing body of evidence that suggests well-being experienced over the day can provide a more granular understanding of the lived experiences of roles (Flood et al., 2018; National Research Council, 2013).

Findings also have implications for policymakers interested in supporting working caregivers to older adults as our results show that working caregivers are not homogenous. Families are the front-line caregivers for many older adults but because of increasing rates of employment and shrinking family sizes, fewer family members may be available to help in the future (Agree, 2018). As the population ages and the need for caregivers for older adults increases, family members can be expected to spend a substantial portion of their working life providing care (Ophir & Polos, 2021). Our study suggests that finding ways to support work and care will be important for the well-being of caregivers, which may in turn have positive spillover effects for the older adults they care for. Both formal workplace policies (Haas & Hwang, 2019), as well as informal policies (Patterson et al., 2017) that may support working caregivers providing help to older adults deserve more attention as the aging population puts increasing pressure on families to provide care. Policies that target full-time workers may be especially important key to improving well-being among working caregivers.

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