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Switching Dynamics and the Stress Process

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Abstract

This paper shows how maintaining social relationships can be a daily hassle that has implications for the stress process, depending on how often individuals transition, or "switch," between their various social roles and social settings throughout the day. I use nationally representative time diary data on 7,662 respondents from the 2010 American Time Use Survey to measure individual rates of this switching behavior and to examine how this relates to perceived stress. Regression analysis shows that, net of how many social roles they play and settings they visit on a given day, individuals who switch more frequently between these elements report higher levels of stress. This finding holds for women but not men, suggesting that switching dynamics are disproportionately stressful for women. I close by discussing the implications of the findings for research on gender and health.

Keywords

Microsociology; gender; health; social networks; sociology of time

Stress is not only one of the most important predictors of numerous mental and physical health problems, it is also one of the most thoroughly theorized and empirically examined aspects of health in sociology (Pearlin 1989; Thoits 2010). Social scientists have documented a wide variety of social factors that contribute to stress, including chronic strains and major life events like divorce (Serido, Almeida, and Wethington 2004; Kanner et al. 1981; Pearlin 1989; Wheaton 1983). So-called "daily hassles" – such as verbal disputes or traffic jams – also play an important role in the stress process, but they have received less attention in scholarly research in part because they manifest on a smaller time scale and are more fleeting (e.g., Cooper at al. 2011; DeLongis et al. 1982; DeLongis, Folkman, and Lazarus 1988; Kanner et al. 1981; Roxburgh 2011; Vermeersch 2010; Wheaton 1999).

This paper focuses on one aspect of everyday social life that constitutes a pervasive yet poorly understood daily hassle, and examines its implications for stress. Specifically, I introduce the concept of "switching," which is the process by which social actors move between different social contexts (e.g., leaving one conversation and joining another). Scholars recognize that while these dynamics are crucial for maintaining multiple social roles and relationships (Giddens 1984; Goffman 1959, 1974; White 2008), they determine how hectic one's everyday life can be (Southerton 2003). In particular, frequent, rapid,

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and/or unexpected transitions between disparate social roles and/or settings can pose challenges to individuals in terms of schedule coordination and planning, they can be cognitively demanding, and they can strain social relationships (Danna-Lynch 2010). To date, this has been implied in only a limited way in research on the role of daily hassles in the stress process (e.g., Pearlin 1989) and through research on the challenges of navigating the work-family interface (e.g., Bolger et al. 1989; Kelly, Moen, and Tranby 2011; Lesnard 2008).

There has yet to be a direct examination of how the real-time dynamics of movement between social contexts affects individuals. With this goal in mind, this paper aims (1) to address theoretical foundations for studying the dynamics of switching between social contexts, and (2) to illustrate the relevance of these dynamics to sociological inquiry by examining their effects on individuals. Furthermore, because everyday social roles and relationships tends to be negotiated so differently for men and women (see Hochschild 1989; Offer and Schneider 2011), this study will also (3) consider how switching dynamics provide clues about gender differences in the stress process. For the analysis, I will use nationally representative data from 7,662 working men's and women's 24-hour time diaries to track individuals' movement between social contexts on a given day and examine the association between these dynamics and stress.

DAILY HASSLES AND THE STRESS PROCESS

The idea that even seemingly small changes in the social environment affect stress is anticipated in a long line of research on the physiological adaptation of the body to changes in its environment. Cannon (1932) noted that the body constantly undergoes a process of homeostasis, or adjustment to change to maintain physiological stability. When conditions are interrupted or threatened in some way, the body's neuroendocrine and autonomic systems react as necessary (Seyle 1956). This reaction is mediated by the central nervous system, implicating a large set of physiological responses to shifts in the environment in a complex process of allostasis (Sterling and Eyer 1988).

Factors that activate this stress response process (i.e., stressors) range from minor developments in the physical or social environment (e.g., a crying child) to more extreme situations, like disasters. Some scholars distinguish social stressors in terms of life events (e.g., divorce), chronic strains, and daily hassles (see Serido, Almeida, and Wethington 2004; Kanner et al. 1981; Pearlin 1989; Wheaton 1983). Chronic strains are those that arise in everyday situations but which persist for a long period of time, like financial hardship, discrimination, or role overload (e.g., Aneshensel, Pearlin, and Schuler 1993; Higgins, Duxbury, and Lyons 2010; Pavalko, Mossakowski, and Hamilton 2003). Daily hassles manifest on a smaller time scale and may or may not amalgamate into chronic stressors (e.g., Cooper at al. 2011; DeLongis et al. 1982; DeLongis, Folkman, and Lazarus 1988; Kanner et al. 1981; Vermeersch 2010).

Daily hassles have generally received less attention in the stress process literature than other classes of stressors (Roxburgh 2011). It is nonetheless important to understand these stressors because, like chronic stressors, they can be constant or frequent. Wheaton (1999)

distinguishes between one-shot daily hassles that can occur unexpectedly and are non-recurrent (e.g., a physical altercation) and regular or episodic daily hassles (e.g., a traffic jam during a workday commute) which can become part of a trying daily routine. In the face of such stressors, the body's adaptive capacities can become overwhelmed, causing irreparable wear and tear on the body (McEwen 1998) and ultimately serious health problems (e.g., Mair, Cutchin, Peek 2011). But, as I argue in the following sections, there are several ways in which social relationships constitute daily hassles that have yet to be addressed in the stress literature.

SWITCHING DYNAMICS

This paper contributes to research on daily hassles in the stress process literature by examining daily shifts in the social environment that occur on small time scales and (usually) numerous times a day, but which can accumulate into routine social-environmental shifts. Specifically, I focus on the dynamics of individuals' movement between different social contexts, or "switching."

The concept of switching is not new to sociology, though it has not always been called by that name. Perhaps more than anyone else, Goffman (1959) highlighted the process of entering and exiting different social contexts – especially between front and back regions – and underscored the necessity of doing so in order to play social roles and to maintain multiple identities. Giddens (1984) argues that only by repeating these kinds of transitions day after day – and thereby establishing a reliable routine schedule, or sequence, of interactions – can people become truly socially integrated (see also Gershuny 2000). Switching between social roles is beneficial to the extent that it allows individuals to maintain multidimensional identities and access to the different resources that are available from different social contacts (e.g., Thoits 1983). Other scholars have also recognized that switching is central to the process by which information, resources, and emotions are spread throughout society (e.g., Collins 2004). Because social connections are heavily patterned by physical proximity, switching between settings implies that one has the capacity to maintain connections and resources in different locations, and possibly to transfer resources between settings (see Feld 1981).

The first scholar to discuss micro-transitions on small time scales explicitly in terms of "switching" is Harrison White (1973, 1995, 2008; Mische and White 1998), who agrees that it is central to all of these processes, including maintaining multiple identities and exercising influence over multiple domains. Over the years, he has used the term broadly to refer to the process of changing between various types of social contexts. Switching can merely involve a shift in activity (i.e., "activity switches") or interaction style (i.e., "style switches"), as well as more extreme changes in the social environment.

In this paper, I focus on more substantial switches that involve movement between different social roles (i.e., "role switches") and/or entire social settings (i.e., "setting switches"). *Role switches* correspond to what some scholars have referred to as "role-transition" behavior (see Ashforth, Kreiner, and Fugate 2000). Indeed, Goffman (1959) spoke of switching as movement "back and forth between…roles" (p. 123). Role switches may involve a change

within a given setting (e.g., turning to address someone else during a meeting) or movement between completely different settings. *Setting switches* may or may not occur conterminously with role switches. For example, one can switch between places without changing one's social role (e.g., walking from one setting to another with one's partner or child). The most extreme form of switching, which I call *complete switches*, involves transitioning between completely different roles and contexts.

Switching as a Stressor

While most scholars have discussed the integrative functions of switching, the concept also provides fresh insight into the stress process. Several lines of research imply that switching may constitute a daily hassle. For one, inter-role conflict, or the incompatibility of demands that originate in multiple roles, has long been a prominent factor in the stress process model (Pearlin 1989; Pearlin et al. 1981). Role conflict results from temporal collisions between obligations – that is, sets of itineraries for different roles that are not synchronized. Switching is often born of this conflict, as it is central to the process of navigating multiple demands. This is most evident in research on the work-family interface, which documents negative impacts of daily work-family spillover for perceived stress, burnout, and stress hormone levels (Piko 2006; Schieman and Young 2010; Voydanoff 2005). As the boundaries between these domains become more permeable –thanks in part to advances in communication technology – work-family conflict is increasingly resolved by oscillating back and forth between domains (Ashforth, Kreiner, and Fugate 2000; Chesley 2005). This presents individuals with physical, logistical, and cognitive demands that are independent of the demands that arise from the roles themselves.

The everyday demands of switching are also addressed in interactionist frameworks. Goffman (1959, 1974) highlighted the sometimes painstaking preparations that individuals make for encounters. With each transition, an actor shifts mindsets, strategizes dramaturgical gambits, conducts "readiness checks," and does whatever else is needed to prepare. This comes to a head as the switch occurs, as actor meets audience. (For enlightening examples of the heightened nature of impression management efforts when crossing from back to front regions, see pp. 121–123 in Goffman [1959].) Switching often requires one to adjust to new surroundings, symbol systems, activities, interaction styles, and expectations. Thus, there is often a need to determine "What is going on here?" (Goffman 1974) when entering any social context. This idea is central to ethnomethodology as well, which shows that everyday reality is a real-time accomplishment (Garfinkel 1967). This is implicit in Mehan and Wood's (1975) conceptualization of everyday interaction as "reality work," which builds on the idea that even seemingly trivial social interactions require some effort in order to achieve shared definitions between actors. This is true when a person transitions between either different social roles (role switches) or entirely different settings (setting switches), but it is especially salient when switching between both concurrently (complete switches).

This work suggests that switches are stressful in part because they create junctures at which a person's micro-interactional workload momentarily increases – moments at which contextual understanding and consensus between new interaction partners has not yet been

achieved. It is important to note that several factors are likely to affect the extent to which these transitional moments constitute stressors. I briefly discuss some temporal and contextual conditions, then I address how a key social-structural variable – gender –shapes how individuals experience this process.

Conditions—One important condition is the extent to which a given switch (between roles and/or settings) is routine and, thus, *expected*. Some switches are so routine (e.g., leaving work at the end of the day) that established transition scripts are available (Ashforth, Kreiner, and Fugate 2000) – perfunctory "goodbyes" and "hellos" and associated rituals that typically accompany interaction openings and closings (e.g., see Goffman 1959, 1974; Kendon 1990). Routine switches may reduce stress because they allow individuals to navigate an otherwise fast-paced world without continual deliberation about "What is going on here?" (Goffman 1974) at every moment (see also Giddens 1984). But some switches are unexpected, and thus heighten awareness of environmental cues and stimuli (Flaherty 1999; Hitlin and Elder 2007). Unexpected transitions snap individuals out of automatic modes of cognition and into deliberative modes that require more measured thought and action (DiMaggio 1997).

A related factor is the extent to which a switch is *voluntary*. In her analysis of switching between work and family roles, Danna-Lynch (2010) distinguishes between voluntary switches (which are often expected and preceded by preset triggers, such as reminders from an electronic device) and involuntary or reluctant switches (which are often unexpected and signaled by an external stimulus, such as a phone call or a knock at the door). The latter instances are more stressful. This distinction dovetails with research that shows that controllable and uncontrollable events have different effects on the stress process, in part due to their different implications for sense of control and self-concept (e.g., see Shrout et al. 1989; Thoits 2006).

A final point is that just as specific instances of switching may be hassles, the overall *rate* of switching during a given period of time is consequential for the chronicity of the stress process. There is considerable intra- and inter-individual variation in the number of role and setting switches that occur in a given day. Net of how socially integrated a person is, the quantity of switches s/he experiences says something about how efficiently or conveniently his or her social roles are enacted temporally. Playing two roles usually requires fewer switches than playing five, but not if one must switch back and forth between them frequently during a short period of time – which can occur wherever boundaries between domains are highly permeable (Ashforth, Kreiner, and Fugate 2000). In other words, how the roles and settings a person experiences unfold in a temporal sequence shapes longer-term stress processes. More frequent switching may increase the risk of role stress "spillover," for example, by which the stresses experienced in one domain carry over into subsequent domains (e.g., Bolger et al. 1989). This raises the possibility that rapid movement between contexts can reduce individuals' capacities to utilize coping mechanisms and other resources that are otherwise available within a given context to deal with stress (Lazarus and Folkman 1984). For example, switching may diminish the stress-buffering benefits of being integrated in multiple social roles and settings.

GENDERED SWITCHING DYNAMICS

There is heterogeneity in the stress process across individuals and groups (e.g., Lazarus 1991). Cognitive and emotional responses to stress stem not just from the presence of stressors (like unexpected switches), but also from the interaction between those stressors and individuals' capacities to respond and adapt to them (e.g., Mechanic 1962). For the purposes of this paper, I elaborate on one particularly important factor that may give rise to variation in the link between switching and stress – gender.

A large body of research documents a link between gender and stress (Helgeson 2011). This work is largely concerned with gender differences in degrees of exposure and responses to commonly recognized stressors such as bereavement, discrimination, and caregiving (e.g., Artazcoz et al. 2004; Cancian and Oliker 2000; Chesley and Moen 2006). Meta-analytic reviews have revealed small differences between men and women in terms of overall exposure to various stressors, although women may have slighter more exposure and may experience higher levels of psychological distress (e.g., Almeida and Kessler 1998; Davis, Matthews, and Twamley 1999; Matud 2004; Thoits 2010).

To this body of work, it can be added that because men and women's everyday routines are so different, they have differential exposure to stressful switches. Gender shapes not only the roles individuals play, but also how they move between roles and settings (Ridgeway and Smith-Lovin 1999). This comes out most clearly in research on the gendered division of labor and the work-family interface. A body of research documents what Hochschild (1989) called the "second shift," in that when the workday is done, a new set of tasks disproportionately awaits working mothers (see also Blair-Loy 2003). Women are disproportionately likely to have to juggle multiple tasks during a short period of time, thus creating highly convoluted activity sequences (Southerton 2003). Some research shows that women's routines are more constrained than men's, in that women have less flexibility with respect to whether and how frequent they can move between work and family domains (Bittman et al. 2003; Hochschild 1989; Lee and Waite 2005). Thus, their switches may be disproportionately involuntary. Other scholars have recently documented greater effects of work-family boundary-spanning behavior on psychological distress among women, which may operate in part through feelings of guilt (see Glavin, Schieman, and Reid 2011).

These things lead to differential *vulnerability* (Kessler 1979) between men and women with respect to switching stressors. As noted above, frequent, unexpected, or involuntary switching is likely to be particularly stressful, and may reduce one's capacity to utilize existing coping resources. To the extent that women's daily routines involve these less-favorable switching conditions, as several scholars suggest (e.g., Bittman and Wajcman 2000; Hochschild 1997; Southerton 2003), this could make switching more of a hassle for women. Indeed, Michelson (1985) found that of all the activities in their daily routines, working mothers reported feeling particularly tense during instances of travel (e.g., commuting). Michelson argues that this reflects the fact that working women's commutes often occur between two kinds of activities – childcare and paid work – which are highly salient for these women. The tension arises from the fact that both of the activities on either

side of their commutes require commitment and punctuality, while the commute itself is often beyond their control.

This literature suggests that even though switching between roles and/or settings throughout the day is necessary, it can be stressful and cognitively demanding –especially under certain conditions and for certain groups. Unfortunately, little is known about the nature of switching in everyday life, let alone the implications of switching dynamics for individuals and groups. To shed some light on this process, I now turn to an empirical analysis of the relationships between switching dynamics and stress using nationally representative data.

DATA AND METHOD

To test the association between switching and stress, I use data from retrospective time diaries collected by the Bureau of Labor Statistics (BLS) in the American Time Use Survey (ATUS). The ATUS is a nationally representative survey that is conducted annually (since 2003) to assess how Americans spend their time. The ATUS draws a random sample of households from those leaving the Current Population Survey (CPS) rotation each month. An eligible person from the household (a civilian at least 15 years old) is randomly selected to be interviewed. Interviews are conducted by telephone using a computer-assisted telephone instrument (CATI).

The ATUS collects 24-hour recall diaries from each respondent. To collect the diaries, ATUS interviewers start by asking respondents to cast their minds back to the beginning of the previous day: “So, let’s begin. Yesterday [e.g., Thursday], at 4:00 AM. What were you doing?” They then work forward through the rest of the day, collecting information about what the respondent was doing, how long each activity lasted, where each activity occurred, and whom the respondent was with.[1] The shortest unit of time reported for a given activity is 5 minutes, which allows for up to 288 activities on a given day, thus providing a finely grained portrait of everyday social dynamics.[2]

Perceived Stress

In 2010, the National Institute on Aging sponsored a ATUS well-being module that includes questions about subjective aspects of health. This module was administered after the time diary collection. The computer randomly selected three activities from the respondent’s just-reported activity sequence.[3] For each of the three activities selected, respondents were told which time frame the activity covered and what the activity was: “Between [start time of

[1]This recall method provides data with more coverage and less cost than other time data collection methods, such as experience sampling, which involves real-time data capture (Phipps and Vernon 2009). While time diary data yield less precise estimates of *when* certain behaviors occur in the course of a given day as compared to real-time data capture methods that involve repeated sampling, they provide a better picture of the *duration* of behaviors (Paolisso and Hames 2010; see also Sonnenberg et al. 2012).

[2]The data do not capture minor shifts in context. Respondents reported an average of 20 activity spells. The diaries would not register the interaction that occurs when two neighbors wave to each other, when a man passes by his wife while on his way to the kitchen to refill a glass of soda during a TV commercial break, or when a student says goodbye to his roommates on his way out for the night. Rather, the ATUS diaries are intended to capture activities that present opportunities for what we might think of as “focused interaction” in the context of more extended encounters that last at least several minutes (Goffman 1961).

[3]Several restrictions were placed on which activities could be selected for the well-being questions: (1) the activity must have been at least five minutes long; (2) the activity could not involve sleeping, grooming, “personal activities,” or times that respondents did not know, could not remember, or refused to say what they were doing. The grooming, personal activities, non-response categories account for 3.1 percent of the time covered in the diaries, on average, so these restrictions did not result in a major loss of data.

episode] and [stop time] yesterday, you said you were [doing activity]. The next set of questions asks how you felt during this particular time." For each of the three activities, respondents were asked seven questions. One of the questions asked: "From 0 to 6, where a 0 means you were not stressed at all and a 6 means you were very stressed, how stressed did you feel during this time?" Responses to this question provide the basis for my measure of stress.

The well-being questions referred to three different activities, so one might treat each of the three responses as separate measurements and predict them using time-varying independent variables. I do not do this for several reasons. First, the correlation among the three stress measurements at the individual level is high ($\alpha = .79$), so there is relatively little intra-individual variation throughout the day. This high correlation may partially reflect joint variation caused by recall bias (e.g., difficulty remembering how one felt precisely during that time), autocorrelation, and other sources of endogeneity. Finally, stress that is experienced at a given time during the day (e.g., 11am) may reflect not only responses to stimuli that were present at that exact time, but also lingering responses to stimuli that were experienced earlier in the day (e.g., an argument that one had at 9am) or responses to anticipated stimuli (e.g., a presentation that one was scheduled to give at 1pm). For these reasons, in the main models I measure stress not as a time-varying state, but as an individual-level variable – specifically, as the average of the three stress ratings.

Switching Dynamics

For each activity reported, respondents were asked both whom they were with and where they were at that time. This makes it possible to track respondents' experiences with three different forms of switching. I begin with the setting the respondent reported for his or her first activity, and I count as a *setting switch* each time there is a change only in where s/he is. Second, data on whom the respondent was with is recorded in terms of role categories (e.g., spouse, friend, neighbor).[4] I count as a *role switch* any point in the sequence at which the respondent changed only the social role s/he was played between activities. Third, I count moments at which a respondent switched both settings and roles simultaneously as *complete switches*. (The sum of these three switches equals the total number of actual switches observed.)

Instances for which there are missing data regarding whom the respondent was with or where s/he was are skipped when calculating these switching measures. This is an important issue in the case of the ATUS diary data, as the ATUS does not ask whom respondents were with during instances of sleeping and personal/private activities. Thus, when determining whether a given type of switch occurred at a given time-point observation, information about the preceding time point that had non-missing data is used to determine whether a (and what type of) switch occurred.

[4]Note that this question does not ask about switches between specific people who are the same role-type. For example, these data do not measure movement from one friend to another. Thus, this measure is appropriate for capturing movement between coarsely grained role domains.

For illustrative purposes, Figure 1 displays a typical activity sequence for female respondents. (See Appendix A for a description of why this example was chosen, and to see a typical sequence for men.) This particular woman was a 31-year-old, non-Hispanic white mother of two who was living in a metropolitan area in Indiana at the time of her interview. The figure shows how she spent a Monday in January 2010. The horizontal bars represent different roles she played at specific times on the day in question. She awoke early in the morning (4:45am) and for an hour and a half provided some kind of care for her two sons (a 3-year-old and a 9-year-old), then she took her boys somewhere and dropped them off at 6:20am. She then drove for 20 minutes to work, where she took a half-hour lunch break at 12:15 and left at 3:15pm. She went directly from work to pick up her children, and then drove them home. Her day continues to unfold as shown in the figure. This woman experienced 13 identifiable switches, including six setting switches (e.g., at 6:15am), one role switch (at 9:55pm), and six complete switches (e.g., at 3:30pm).

Unfortunately, the ATUS does not provide complete contextual information about switches. As such, there is no information about whether certain activities were voluntary as opposed to obligatory, expected or unexpected, or routine or unusual. It is therefore beyond the scope of this analysis to assess the role of these factors in conditioning the effects of switching on individuals.

Social Connections and Time Use

To avoid confounding switching frequency with social connectedness, I measure (1) total number of roles played in terms of the number of different types of contacts the respondent reported being with on the day in question (regardless of how many times s/he switched among them), and (2) exposure to different social settings by counting the total number of different types of places s/he reported on the day in question.

The ATUS captures several other factors that likely affect switching and/or stress, including: (1) The amount of time respondents spent at home; (2) the amount of time they worked; (3) the amount of time they engaged in “relaxing and leisure” activities (e.g., “television and movies” and “playing games”); (4) the amount of time they spent with children (including non-household children); and (5) the amount of time they spent in transit (e.g., in a car or bus) on the day in question. These measures are expressed in hours (total number of minutes divided by 60). I also take into account (6) the number of times the respondent reported changing activities but did *not* switch between either settings or roles (i.e., non-switches). Including all of these measures helps to control for the range and heterogeneity of action respondents engaged in during the 24-hour-period in question. Descriptions of the main variables used in the analyses are provided in Table 1.

Controls

All models include an indicator of the day of the week for which the diary was collected. They also include socio-demographic measures that may be associated with stress and switching, including age, race, and ethnicity. Life-course factors that affect the demands individuals face on a daily basis are also considered, including measures of education, labor force status, marital status, and number of household children.

The ATUS data capture some aspects of well-being that might affect stress. For one, respondents were asked how healthy they were (from poor to excellent). This provides some information about underlying health problems that could affect stress. Respondents were also asked how well-rested they were when they woke up on the day in question, as well as whether they had ever been told by a health professional that they had hypertension. This last item helps control for physiological sources of stress. Finally, respondents were asked how tired, sad, and happy they were during the three activities identified for the well-being module. These were also reported on a scale from 0 to 6. These reports are likely to vary with stress. And because these ratings use the same exact scale as the stress measure, including them helps control for individual-level reporting biases that may give rise to endogeneity.

Analysis

The ATUS interviewed a total of 12,829 individuals in 2010 who provided data on stress. To ensure that findings regarding switching do not merely reflect differences in respondents' exposure to institutional constraints and demands (Sennett 1998), this analysis is restricted to 7,662 individuals who indicated that they were currently working at the time of the ATUS interview and who had no missing data on key variables.[5]

As discussed above, everyday routines and the stresses that are associated with them differ by gender. Results of Chow tests confirm that equations predicting stress, which include a number of sequence and switching predictors, differ significantly by gender ($F = 1.50$, $df = 38, 6746$, $p < .03$). Accordingly, the analyses presented here are disaggregated by gender.

All analyses adjust for ATUS's multistage sampling design by incorporating scrambled pseudo primary sampling unit (PSU) clusters and strata and by utilizing person-level weights. Because ATUS respondents are drawn from the CPS, ATUS weights are based on the CPS weights, with additional adjustments to account for the fact that less populous states are not oversampled by the ATUS, to account for the probability of selecting each household within the ATUS sampling strata and of selecting each person from each household, and to reduce bias in the estimates due to differences in sampling and response rates across subpopulations and days of the week (U.S. Bureau of Labor Statistics and U.S. Census Bureau 2011). Because ATUS response rates are mediocre (57 percent), the weights also include a nonresponse adjustment that increases the weights of respondents who disproportionately represent eligible sample persons who were not interviewed in the ATUS (e.g., see Morgan and Todd 2008).

[5]Analyses that are based on all individuals in the sample, regardless of employment status, also find significant associations between switching and stress. Less than one half of the sample (43.4 percent) did not work on the diary day in question, although about one quarter of the sample (26.4 percent) worked at least eight hours. Additional analyses that are conducted using only those respondents who worked for at least one hour on the day in question, however, yield similar results to those reported here, as do analyses that are restricted to only those respondents who worked a full eight-hour workday. At the same time, analyses that are restricted only to those respondents who worked less than one hour or not at all on the day in question yield somewhat similar results. Role switches and setting switches are highly significant, and complete switches are marginally significant ($p = .054$), for women, and in fact setting switches become significant ($p < .01$) for men. This suggests that the main findings reported here do not merely reflect the stressful effects of work-related switches. Full results are available upon request.

FINDINGS

It is useful to begin by examining the social character of these working adults' everyday lives. In general, these people were quite socially active. They were typically awake for about 15.7 hours per day, during which time they did an average of 5.0 hours of work and had 3.0 hours of relaxation and leisure. In addition, these working adults spent 2.8 hours in the company of children, on average, and 1.4 hours in transit (e.g., on a bus or in a car). Overall, these spent an average of 9.6 hours (61.1 percent of their waking time) engaging in some form of social contact. Respondents reported an average of a little over four (4.3) different locations on the day in question (e.g., home, car, work, grocery store) and a little under four (3.6) distinct social roles (e.g., spouse, parent, worker).

This social integration also translates into an appreciable number of microsocial transitions per day. The average number of activity episodes reported by these working adults in their activity sequences was 19.7. Given that these episodes provide the only opportunities for respondents to report switching in their time diaries, the fact that they typically experienced close to 11 (10.7) switches suggests high levels of movement between social contexts. There was a wide variety in the types of switches experienced between these activity episodes. On average, respondents experienced 4.5 setting switches, 2.8 role switches, and 3.4 complete switches on the day in question. Only about 14.2 percent of the respondents reported fewer than five switches on the day in question, and roughly the same proportion (15.8 percent) reported 17 or more. One respondent experienced 49 switches, which was the maximum number reported.

Stress

The main goal of this paper is to assess the connection between these aspects of everyday social life and individuals' subjective stress. The average stress level was 1.43, which indicates low average stress. A little under one-third of the sample (29.3 percent) reported no stress at all (all three stress reports = "0"). At the same time, 15.9 percent of respondents reached extremely high stress levels of 5 or 6 at some point on the day in question, suggesting that something that occurred during the 24-hour period elevated some individuals' stress. As shown in Table 1, stress reports varied substantially by gender. Women reported average stress of 1.53, compared to 1.33 among men ($t = 4.41$, $p < .001$). Furthermore, women were 48.3 percent more likely than men to report extremely high stress levels ($t = 4.49$, $p < .001$).

Table 2 shows results from the multivariate regression analysis predicting women's and men's stress levels, respectively. The first model for each group (columns 1 and 3) includes all key predictors except for the switching measures, and the second set of models (columns 2 and 4) includes these measures. First, I will cover control variables that are significant across nested models for each gender. I display coefficients in parentheses (from the final models) only if they are not displayed in the table.

First, among women, age has a non-linear association with stress. Age has a generally positive association with stress until the mid-40s, and thereafter has a generally negative association. Race is also a significant predictor of stress, as African-American women

reported less stress than white women (b = −.30, s.e. = .07). Women who had less education generally reported less stress, especially comparing women who had only a high school education to those who held professional degrees (b = −.17, s.e. = .08). Women who were separated/divorced or never married had higher stress levels of stress than partnered women. Women who had high blood pressure had higher stress levels (b = .13, s.e. = .06), as did those who reported being only "a little" well rested (b = .26, s.e. = .09) or only somewhat well rested (b = .16, s.e. = .06) as opposed to being "very" well rested. Likewise, stress was substantially higher among women who reported being more tired (b = .21, s.e. = .02), more sad (b= .54, s.e. = .03), and/or less happy (b = –−.18, s.e. = .02) during the activities for which stress levels were recorded.

The results for men are similar in several respects. First, education is positively associated with stress. Men who had less than a high school education (b = −.48, s.e. = .10), a high school diploma (b = −.30, s.e. = .08), or some college (b = −.17, s.e. = .07) reported less stress than men who held a professional degree. Health is significant in the case of men as well. Those who reported being in only good health (b = .27, s.e. = .08) or fair health (b = . 22, s.e. = .10) were more stressed than those who reported being in excellent health. Being "not at all" well rested (b = .66, s.e. = .16), a little (b = .33, s.e. = .08), or only somewhat well rested (b = .13, s.e. = .05) led to greater stress. Likewise, stress was higher among men who reported being more tired (b = .20, s.e. = .02), more sad (b= .59, s.e. = .03), and/or less happy (b = −.08, s.e. = .02).

This analysis also takes into account time use patterns. For the most part, aspects of time use relate to stress in the same way for both men and women. The most significant time use factor in these models is time spent working. Each additional hour spent working is associated with a .027 increment in stress for women and a .015 increment in stress for men (columns 2 and 4). Time spent relaxing is negatively associated with stress among men. Time spent at home, time spent with children, and time spent in transit are not significantly associated with stress for either men or women.

Switching Dynamics and Stress

The multivariate regression models presented in Table 2 show that, in general, everyday switching frequency is significantly associated with average stress levels. The association between switching and stress is only significant, however, for women. For them, all three forms of switching are associated with greater stress. Each additional instance of switching between social roles is associated with a .034 increment in average self-rated stress ($p < .01$). Similarly, each setting switch is associated with a .038 increment in stress ($p <.001$). The strongest relationship is with complete switches, where an additional switch is associated with a .054 increment in stress. Although this is not reported in the tables, it is important to note that likelihood ratio tests confirm that not only are the three switching measures significant in predicting average stress levels for women, including them results in a significant increase in the fit of the model predicting stress among women ($\chi^2 = 34.10$, $df = 3$, $p < .001$) but not among men ($\chi^2 = 3.20$, $df = 3$, $p = .20$).

Due in part to the distribution of stress and the scale of the measure, it is difficult to assess how meaningful this association is. Nearly one-third (31.5 percent) of the working sample

did not report any stress. One concern is that these associations reflect trivial increments of stress – for example, from 0 to 1 or 2 (out of 6). Therefore, a parallel set of models were fitted to determine whether switching plays a role in generating unusually high stress levels. This set of models predicts whether the respondent reported a stress level of 5 or 6 (the two highest levels) at any point on the day in question. These high stress levels were reported by only 14.7 percent in the working sample. This outcome was predicted using the same variables as used in the main models discussed above, but using logistic regression analysis. These findings yield results that are similar to those reported above (see Appendix Table A1), showing that switching is significantly associated with high stress among women but not men. (Similar results were found using an ordered logit model with proportional odds predicting low, moderate, or high levels of stress. Results are available upon request.) In this case, switching between settings only is not significantly associated with stress, but both role switching and complete switching forms are significantly associated with high stress in women. For each additional role switch, the likelihood of reporting high stress increased by 7.4 percent. Micro-transitions that involve both switching roles and switching settings simultaneously (complete switches) have a stronger association with stress. For each additional complete switch, the likelihood of reporting inordinately high stress levels increased by 12.1 percent.

The association between complete switching and stress for both men and women is presented in Figure 2. Inspection of this figure shows that the risk of high stress is considerably greater at higher levels of switching. For example, a woman who experienced five compound switches had a 15.0 percent probability of reporting high stress, compared to a 9.1 percent probability among women who experienced no such switches. This constitutes a 65.4 percent increase in risk of high stress. The risk of experiencing such high stress levels are greater among the 17.8 percent of respondents who reported even more frequent switching.

To confirm that these results reflect the importance of switching, and not particular social roles that were played by these individuals, I conducted a set of supplemental analyses (not presented here) that include additional parameters indicating whether respondents reported playing each of ten different social roles (including spouse /partner, parent, son/daughter, sibling, other family member, non-kin coresident, friend, neighbor, worker, and other non-kin contact) at any point on the day in question. The same findings hold net of these parameters, which yielded few significant coefficients (available upon request).

It is also worth noting that just as switching is positively associated with high overall stress, switching helps to explain heterogeneity in the stress measure. A series of multinomial logistic regression analyses (not shown) reveal that among women, all three forms of switching reduce the likelihood of having low levels of stress (0–2) relative to moderate stress (2–4), while this is not the case for men. (Results are available upon request.) Thus, switching not only increases the risk of high stress in women, it also decreases the likelihood of low stress.

Tables 2 and A1 show that taking switching into account helps to clarify the role of being socially connected on everyday stress levels. Prior to taking switching into account (column

1), the number of social roles women play in a given day is positively associated with stress, while the number of settings they enter had no association with stress. Once we take switching into account, these measures are, if anything, negatively associated with stress (significantly so in the case of number of settings). Adjusted Wald tests show that taking switching into account significantly alters the two measures in the equation for women (F = 7.64, df = 2, 6,776, p <.001). Even though, for men, these coefficients are not jointly significantly altered by adding the switching measure (F = .61, df = 2, 6,782, p = .54), the significant association between the number of roles played and stress (in column 3) disappears once the switching measures are included in the model. Thus, not taking switching into account shrouds the benefits of being connected to more roles and settings.

Gender Differences in Switching

Working women and men were not only affected by switching in different ways, they also reported some important differences in microsequence structure that likely affected their stress levels. While men reported more work (47.7 minutes more: t = 8.00, p < .001), slightly more time in transit (6.0 minutes more: t = 3.12, p < .01), and more leisure (31.2 minutes more: t = 8.13, p < .001), women spent an average of 46.0 minutes more per day in the company of children (t = −7.75, p < .001) and reported an average of 1.6 more switches (overall) per day than men (11.46 vs. 9.84: t = −11.62, p < .001).

Evidence of the gendered nature of these dynamics can be found in the distributions of switching frequency for working men and women (Figure 3). This figure shows the proportion of men and women reporting various numbers of any types of switches experienced during a 24-hour period. Men were more likely to report few switches overall, whereas women were more likely to report an inordinately large number of switches. Women were twice as likely as men to experience more than 20 switches overall on the day in question (11.2 percent versus 5.6 percent). This is partly due to the fact that working women were more integrated in a wider variety of settings than men (4.33, vs. 4.09 for men: t = −6.23, p < .001) and played more social roles overall than men (3.70, vs. 3.45 for men: t = −6.52, p < .001). But the switches working men and women experienced were also qualitatively different. Working women reported a substantially larger number of switches that involved transitioning into, out of, or between contexts involving children (4.87 vs. 3.39: t = −12.64, p < .001). Finally, when disaggregated by switch type, we find that women experienced more setting switches (4.94 vs. 4.38: t = −6.19, p < .001), role switches (3.19 vs. 2.36: t = −12.74, p < .001), and complete switches (3.32 vs. 3.10: t = −3.51, p < .001). Supplemental multivariate regression analyses (available upon request) show that while number of children increases rates of each form of switching among women, it has no association with switching frequencies among men, further highlighting that switching has different bases for men and women.

To amplify these findings, Figure 4 shows the relationship between the proportion of women who experienced switches *at specific times* to the proportion of men who experienced switches at the same times (i.e., women's relative "risk" of switching) between 7am and 10pm.[6] For example, about 11.9 percent of men and 14.8 percent of women experienced a switch sometime between 8am and 8:15am, yielding a relative risk for women of 1.25. This

graph reveals how much more frequently women switch throughout the day. The average ratio is 1.20, meaning that women have, on average, a 20 percent greater probability of switching than men at a given time of day.[7] This figure highlights the fact that women's greater connectedness to different roles and settings comes at the cost of chronic instability in the social environment.

CONCLUSION AND DISCUSSION

Expanding on scholarship that addresses the significance of moving between multiple social roles and settings during short periods of time (Collins 2004; Giddens 1984; Goffman 1959; White 1995, 2008), this paper highlights the implications of switching dynamics for stress. Results suggest that these transitions constitute daily hassles. For working women, in particular, there is a strong link between switching and perceived stress. Frequently switching between roles and/or settings increases women's overall stress and their risk of experiencing acutely high levels of stress. These results hold even when controlling for the number of roles people play, the number of settings they enter, and what they spend their time doing. In other words, how exactly women move between contexts has consequences for the amount of stress they experience above and beyond the nature and volume of their social activities.

There are several potential explanations for the association between switching and stress in general. One is that more frequent movement between disparate social situations increases deliberative modes of cognition (Danna-Lynch 2010; DiMaggio 1997), reduces the ability to rely on pre-established routines and scripts, and may thus reduce the predictability of the social environment (Giddens 1984). Second, frequent movement may reflect difficulty in meeting the demands of multiple social roles. Many scholars have documented the effects of busy schedules on the quality of individuals' relationships, time spent with family, leisure time, sleep, and health (e.g., Fenwick and Tausig 2001; Lesnard 2008; Moen et al. 2011; Presser 2003; Strazdins et al. 2006). The fact that complete switches are particularly strongly associated with stress suggests that this is not just about juggling multiple roles – it is about exposure to different social environments. Finally, while switching increases the range of domains to which one is connected, there may be a point beyond which switching reduces one's ability to benefit from existing social relationships and hampers the functionality of those relationships as stress-buffering and coping mechanisms (see Lazarus and Folkman 1984).

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[6]I begin by assessing, for each respondent, whether the role-context s/he reported during a given time slot changed sometime within the next two five-minute time periods (to reduce noise). For example, if the role-context R experienced during the 7:55–8:00am time period changed by 8:05–8:10am, this is recorded as a switch for the 15-minute time period ending at "8:10" (which is used as the label on the x-axis). I then calculate the proportion of women who experienced a switch during each 15-minute interval, and calculate the ratio of that proportion to the proportion observed for men during the same period (i.e., women's "relative risk" of switching). A ratio greater than 1 indicates that women were more likely to switch at that time, whereas a ratio below 1 indicates that men were more likely to switch at that time. The figure is restricted to the 7am–10pm time period because more than half of the respondents were sleeping in the intervening hours or had missing "with whom" or "where" data for other reasons.

[7]These relative risk ratios could be skewed by the fact that men and women play different roles and engage in different kinds of activities and thereby had different opportunities to switch. In particular, men spent more time at work, which reduced their switching frequency. But even if one restricts the sample to mothers and fathers who worked for at least eight hours, one still finds that women had a higher rate of switching than men, with an average relative risk of 1.37. Overall, gender differences in switching rates are starker among working men and women than among non-working individuals.

Why this is especially true for women is an important finding that deserves more attention. This finding dovetails with other work that shows that women's lives are not just more demanding in the sense of experience more (conflicting) role obligations, but also in the sense that women increasingly experience everyday life as a more complex sequence of movements between assorted roles and settings (Danna-Lynch 2010; Hochschild 1989, 1997; Munch, McPherson, and Smith-Lovin 1997; Offer and Schneider 2011). As illustrated in Figure 4, switching is not just a more common experience among women, it is a more *constant* reality for them – morning, noon, and night. At any given time, women are less likely than men to have a break from impending social transitions. Further examination of this feature of the time bind – not how time is divided, but rather how it is sequenced – may provide new insight into the gendered nature of the division of labor and everyday routine.

It is also possible that the switching measures proxy for other important differences between men and women's everyday routines. I already mentioned that women are disproportionately more involved in switches that involve children, for example. Future work should consider how this and other qualitative differences between the transitions that men and women make on a daily basis, especially with regard to the types of roles and activities that characterize their transitions. Such work will provide important context for the gendered nature of time use and the time bind, and may reveal new dynamic dimensions of the disproportionate "costs of caring" that are faced by women (e.g., England and Folbre 1999).

Finally, this paper is partly an attempt to explore new aspects of microsocial dynamics, and partly an attempt to highlight the importance of these dynamics for health. This paper has focused on the stress process. Other research on microsocial transitions (Danna-Lynch 2010; Southerton 2003) suggests that analysis of switching dynamics may benefit research on other mental and physical health outcomes. Health research usually emphasizes longer-term features of social integration, like access to social support and network connectedness (see Thoits 2011; Uchino 2004; York Cornwell and Waite 2009). Many aspects of health – particularly stable features like self-rated health and chronic conditions like obesity – expectably vary more with aspects of social structure that unfold over the long term (e.g., years). But these measures are poorly suited to the study of more fluctuant health outcomes, including blood pressure, pain, mood, as well as experiences like falls and other health emergencies. The high level of detail in time diary and similar data affords scholars the opportunity to explore structural features of everyday life that have long been neglected in health research. Advances in data collection and analysis technologies (including the development of survey applications for smartphones) have made it even easier to collect data on real-time microsocial dynamics (Paolisso and Hames 2010; Phipps and Vernon 2009; Shiffman, Stone, and Hufford 2008). A turn toward research on this level of social action may facilitate a larger paradigmatic shift that would broaden sociology's influence on health research.

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Biography

Benjamin Cornwell is an assistant professor in the Department of Sociology at Cornell University. His work has been published in *American Journal of Sociology*, *American Sociological Review*, *American Journal of Public Health*, and other outlets. His recent projects examine social network dynamics in later life and their health implications,

organizational networks among community elites, and the individual-level consequences of activity sequence structure.

Appendix A. Microsequence Visualization

To help convey gender differences in microsequence structure, I present "typical" one-day sequences for women (Figure 1) as well as for men (Appendix Table A1). Due to particular interest in how everyday activities are structured in light of multiple demands or roles, I looked for microsequences that are typical of men and women who had a spouse/partner and at least one household child, and who worked for at least an hour on the day in question (n = 1,663). To do this, I began by identifying women and men in these groups who experienced the median number of overall switches (13 for women, 10 for men) and the median number of role-setting combinations that were experienced in a given day for their respective genders (8 for women, 7 for men). I then identified the one woman and the one man whose microsequences were the most similar to the sequences of the other working, partnered mothers and fathers, respectively – also known as the "medoid" sequence of the respective group (Aassve, Billari, and Piccarreta 2007).

Drawing on optimal matching analysis, or OMA (see Abbott 1995; MacIndoe and Abbott 2004), I determined how similar a given individual's (R's) sequence is to the other sequences in R's group by identifying R's role-context at each time point (e.g., 9:05–9:10am) and assessing the proportion of other people in R's gender-specific group who reported the same role-context at that time. The woman (man) whose sequence was the closest to (i.e., the least "distant" from) all other women's (men's) sequences is the one who most often experienced similar role-contexts as the others across time points. This procedure is equivalent to aligning sequences in OMA by using only substitution operations to achieve sequence alignment and by allowing the substitution costs to vary across time points (Lesnard 2010). The medoid sequence for women is shown in Figure 1. Appendix Figure A1 displays the medoid sequence for men who experienced average levels of social and community exposure. In this case, it is a 35-year-old, non-Hispanic white father of one who was living in a metropolitan area in Missouri. He reported on how he spent a Wednesday in March 2010.

Even a cursory visual comparison of these figures reveals some of the most important microsequential differences between men and women. This man spent more time at work, spent more time alone, and experienced fewer switches between microsocial contexts than the woman in Figure 1. He also spent less time with his family, and concentrated his interactions with them in the evening hours. The woman's sequence, by contrast, is frequently punctuated by switches involving her children. In fact, 9 out of the 13 switches she reported involved her children, whereas only 2 out of the 10 switches the man reported involved his child. These trends reflect characteristic experiences of men and women. Moreover, her switches were more interspersed throughout the day, whereas his tended to be packed into concentrated periods of time. Finally, whereas the woman whose sequence is depicted in Figure 1 reported an average stress level of 2.67, the man whose sequence is depicted in Figure A1 reported an average stress level of only .67.

Appendix Table A1

Matrix Showing Zero-Order Correlations among Key Variables for Women (N = 3,941) and Men (N = 3,721)[a]

	Correlation among Women / Correlation among Men												
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**	**(13)**
Stress (1)	–	–	–	–	–	–	–	–	–	–	–	–	–
Widowed (2)	−.021 −.011	–	–	–	–	–	–	–	–	–	–	–	–
Separated/divorced (3)	.050** .039*	−.074*** −.029	–	–	–	–	–	–	–	–	–	–	–
Never married (4)	.022 .003	−.110*** −.056***	−.250*** −.207***	–	–	–	–	–	–	–	–	–	–
Household children (5)	.066*** .023	−.081*** −.050**	−.055*** −.133***	−.055*** −.234***	–	–	–	–	–	–	–	–	–
Time relaxing (6)	−.115*** −.089***	.039* .012	.047** .061***	.038* .043**	−.127*** −.105***	–	–	–	–	–	–	–	–
Time at work (7)	.182*** .136***	.021 .005	.037* .006	−.026 −.069***	−.041* −.004	−.361*** -−442***	–	–	–	–	–	–	–
Time with children (8)	−.041* −.059***	−.030 −.025	−.071*** −.087***	−.101*** −.184***	.458*** .435	−.056*** −.023	−.304*** −.299***	–	–	–	–	–	–
Time in transit (9)	.002 .051**	−.008 .008	.005 −.008	.010 −.016	.006 .040*	−.234*** −.177***	−.069*** −.029	.069*** .071***	–	–	–	–	–
Number of roles (10)	.059** .013	−.088*** −.047***	−.165*** −.142***	−.091*** −.114***	.326*** .362***	−.221*** −.234***	.106*** .097***	.296*** .310***	.098*** .082***	–	–	–	–
Number of settings (11)	−.004 .010	−.018 .029	−.050** −.040*	.017 .116***	.052** .024	−.228*** −.240***	.037* .018	.057*** .061***	.474*** .299***	.319*** .334***	–	–	–
Role switches (12)	.055*** −.021	−.070*** −.030	−.113*** −.099***	−.178*** −.149***	.307*** .267***	−.019 −.029	−.028 −.001	.240*** .210***	−.124*** −.086***	.528*** .538***	−.024 −.019	–	–
Setting switches (13)	−.018 −.017	.007 .065***	.012 .010	.017 .110***	.047** −.052**	−.101*** −.089***	−.173*** −.169***	.097*** .048**	.424*** .281***	.026 −.010	.725*** .698***	−.043** −.058***	–
Complete switches (14)	.076*** .030	−.057*** −.026	−.080*** −.073***	−.013 .000	.144*** .157***	−.232*** −.254***	.173*** .120***	.092*** .131***	.255*** .179***	.632*** .659***	.585*** .587***	.105*** .102***	.218*** .171***

* p < .05,
** p < .01,
*** p < .001 (two-tailed tests)

[a] Correlations take into account sampling weights.

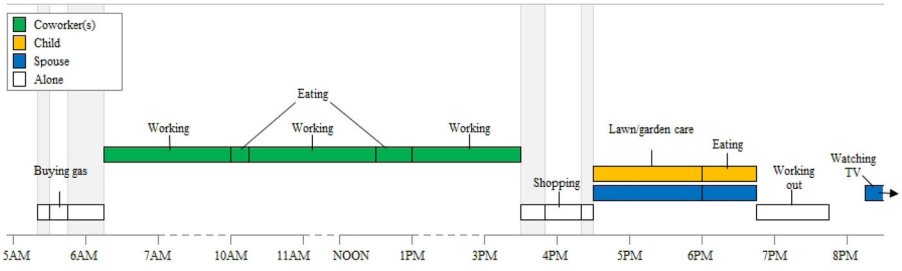
Appendix Table A2

Odds Ratios and Standard Errors from Logistic Regression Models Predicting Very High Self-Reported Stress Levels among Working ATUS Respondents, by Gender[a]

	Women (N = 3,941)		Men (N = 3,721)	
Predictor	**b (s.e.)**	**b (s.e.)**	**b (s.e.)**	**b (s.e.)**
Age (divided by 10)	2.854** (.963)	2.758** (.925)	.787 (.278)	.818 (.293)
Age (divided by 10)^2	.902** (.034)	.905** (.034)	1.013 (.040)	1.009 (.040)
Widowed (*ref*: married/partnered)	.600 (.238)	.627 (.255)	.127** (.088)	.130** (.089)
Separated/divorced	1.597* (.307)	1.614* (.313)	1.467 (.367)	1.464 (.367)
Never married	1.995*** (.357)	2.051*** (.373)	.964 (.225)	.971 (.228)
Number of children	.977 (.063)	.951 (.063)	.841 (.079)	.840 (.079)
Time relaxing (hours)	.984 (.035)	.979 (.035)	.951 (.032)	.953 (.032)
Time at work (hours)	1.017 (.024)	1.017 (.024)	1.032 (.026)	1.033 (.028)
Time with children (hours)	1.013 (.018)	1.015 (.018)	1.018 (.027)	1.018 (.027)
Time in transit (hours)	.896 (.061)	.888 (.065)	1.095* (.046)	1.094* (.047)
Number of roles	1.136** (.052)	1.021 (.066)	1.133 (.076)	1.106 (.103)
Number of places	.970 (.049)	.909 (.060)	1.020 (.067)	.965 (.093)
Role switches	--	1.074* (.030)	--	.993 (.049)
Setting switches	--	1.034 (.028)	--	1.012 (.039)
Complete switches	--	1.121** (.043)	--	1.036 (.051)
Constant	.008*** (.008)	.012*** (.012)	.016*** (.018)	.017*** (.019)
Pseudo R^2	.231	.233	.231	.233

* p < .05,
** p < .01,
*** p < .001 (two-tailed tests)

[a] Estimates are weighted to adjust for oversampling, non-response, and to ensure equal representation for each day of the week. Models account for survey design, and include controls for race/ethnicity, education, health, whether R was "well rested," hypertension, R's self-rated tiredess, sadness, and happiness, time spent at home, day of the week, and the number of non-switches in R's sequence.



Appendix Figure A1.

Annotated Record for a Typical One-Day Microsequence for a Man

This diagram illustrates the medoid microsequence among fathers who were married/partnered, who worked for at least one hour on the day in question, and who experienced the median number of switches and role-setting combinations. The beginning of a given activity (e.g., "buying gas") occurs where a colored or empty horizontal bar begins or is scored

vertically by a black line. Each horizontal bar represents a different type of social contact who was present during the activity. Where bars are stacked vertically (e.g., from 4:30–6:00pm), the respondent was with multiple types of contacts at once. Blank areas (e.g., 7:45–8:15pm) represent time periods for which the respondent did not provide contact/place data. This diagram also includes shaded vertical bars to demarcate periods during which the respondent was in transit (e.g., from 5:20–5:30am). Overall, this man's sequence includes five setting switches, two role switches (e.g., at 6:45pm), and three complete switches (e.g., at 3:30pm).

Figure 1.

Annotated Record for a Typical One-Day Microsequence for a Woman

This diagram illustrates the medoid microsequence among mothers who were married/partnered, who worked for at least one hour (to facilitate comparison with working men) on the day in question. In the map, the beginning of a given activity (e.g., “care for children”) occurs where a colored or empty horizontal bar begins or is scored vertically by a black line. Each horizontal bar represents a different type of social contact who was present with the respondent during the activity. Where bars are stacked vertically (e.g., from 8:30–9:00pm), the respondent was with multiple types of contacts at once. Blank areas (e.g., 8:00–8:30pm) represent time periods for which the respondent did not provide contact/place data. This diagram also includes shaded vertical bars to demarcate periods during which the respondent was in transit (e.g., from 6:20–6:25am). Overall, this woman’s sequence includes six setting switches (e.g., at 6:15am), one role switch (at 9:55pm), and six complete switches (e.g., at 3:15pm).

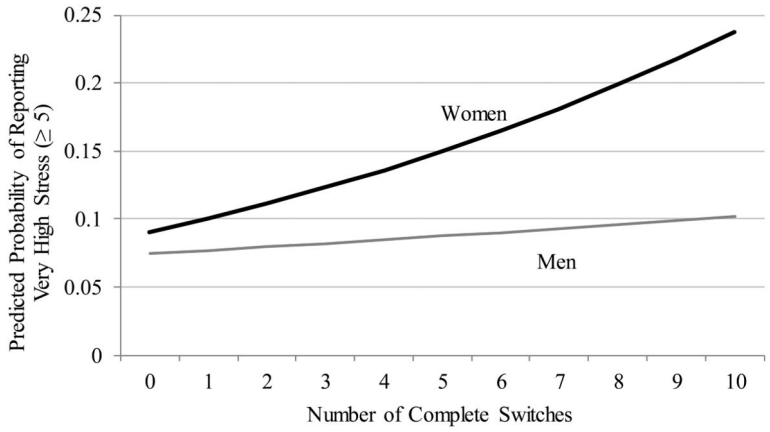


Figure 2.

Predicted Probability of Reporting Very High Stress Levels (≥ 5) on the Day in Question Given Different Rates of Complete Switching, by Gender

Note: This figure was generated using the coefficients from the logistic regression models that are presented in Appendix Table A1 (columns 2 and 4). Predicted values are calculated while holding all other independent variables at their survey-adjusted means.

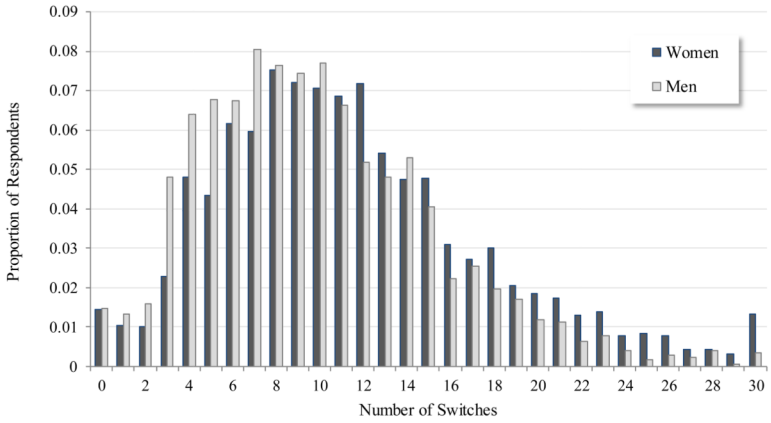


Figure 3.

Distribution of Switching Frequency, by Gender

Note: This figure includes all respondents in the main sample who worked on the day in question. Estimates incorporate selection-adjusted ATUS person-weights.

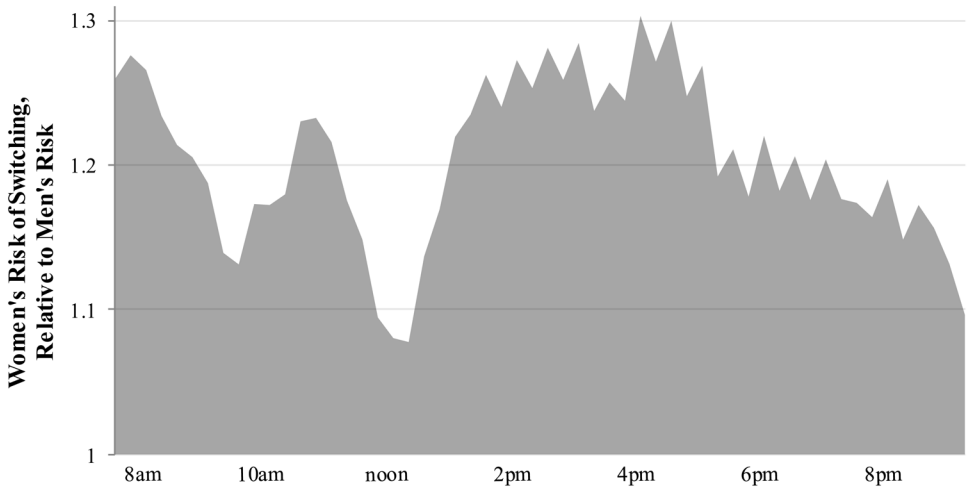


Figure 4.

Women's 'Risk' of Any Switching Relative to Men's, Calculated at Different Times throughout the Day

Note: The figure was generated by calculating the proportion of all women who experienced a transition between role-contexts during 15-minute periods (e.g., the proportion whose role-contexts during the 7:55–8am time period had changed by the 8:05–8:10am time period), and dividing that by the proportion of men who experienced such a transition during that same time frame. This is the relative risk. A value above 1 indicates that a larger proportion of women experienced such a shift than men. This ratio is calculated for each of the 60 consecutive 15-minute increments between 7am and 10pm. To reduce noise, this figure plots a moving average, which is equal to the average of the ratios observed at the 15-minute period in question as well as the two preceding and two subsequent 15-minute time periods.

Table 1

Descriptions of Some Key Variables Used in the Analyses, for Both Working Women (N = 3,941) and Working Men (N = 3,721)

		Women		Men	
Variable		**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
Dependent variables					
Overall stress	The average of the respondent's (R's) three self-rated stress levels, each of which ranged from 0 (low) to 6 (high). Range: 0–6.	1.534	1.597	1.332	1.356
High stress indicator	Whether R rated stress as ≥ 5 at least once on diary day {1= Yes, 0 =No}	.187	.408	.134	.329
Switching measures					
Role switches	Number of times R transitioned between social roles only. Range: 0–28.	3.210	3.141	2.359	2.330
Setting switches	Number of times R transitioned between settings only. Range: 0–42.	4.843	4.451	4.258	3.543
Complete switches	Number of times R transitioned between both social roles and settings simultaneously on diary day. Range: 0–22.	3.518	2.837	3.304	2.601
Selected controls					
Age	R's age, measured in years, top-coded at 80, and divided by 10. Range: 1.5–8.	4.192	1.453	4.147	1.322
Marital status *(ref*: married or living with partner)	R is widowed {1= Yes, 0 =No}	.032	.183	.008	.085
	R is divorced or separated from spouse {1= Yes, 0 =No}	.144	.368	.098	.286
	R has never been married {1= Yes, 0 =No}	.271	.465	.283	.434
Number of children	Number of R's own children living in household. Range: 0–10.	.763	1.142	.818	1.088
Time relaxing	Amount of time R spent relaxing on diary day (in hours). Range: 0–20.7.	2.734	2.633	3.219	2.749
Time at home	Amount of time R spent at home on diary day (in hours). Range: 0–24.	14.059	6.236	13.160	5.853
Time at work	Amount of time R spent at work (in hours). Range: 0–23.	4.572	4.430	5.342	4.312
Time in transit	Amount of time R spent in transit/travel (in hours). Range: 0–15.5.	1.309	1.215	1.440	1.554
Time with children	Amount of time R spent with children (in hours). Range: 0–21.	3.114	4.232	2.447	3.540
Number of roles	Number of different role classes R reported on diary day. Range: 1–13.	3.793	1.728	3.510	1.482
Number of settings	Number of different settings R was in on diary day. Range: 1–11.	4.393	1.837	4.144	1.520

Note : Means are weighted to adjust for oversampling, differential non-response, and to ensure equal representation for each day of the week.

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Table 2

Unadjusted Coefficients and Standard Errors from OLS Regression Models Predicting Average Self-Reported Stress Levels among Working ATUS Respondents, by Gender[a]

	Women (N = 3,941)		Men (N = 3,721)	
Predictor	**b (s.e.)**	**b (s.e.)**	**b (s.e.)**	**b (s.e.)**
Age (divided by 10)	.246* (.118)	.227 (.118)	.047 (.105)	.052 (.106)
Age (divided by 10)^2	−.028* (.013)	−.027* (.013)	−.009 (.011)	−.010 (.011)
Widowed (*ref*: married/partnered)	−.028 (.104)	−.015 (.106)	−.066 (.149)	−.066 (.149)
Separated/divorced	.165* (.073)	.161* (.072)	.205** (.079)	.208** (.079)
Never married	.227** (.080)	.227** (.081)	.010 (.076)	.015 (.076)
Number of children	.064* (.030)	.048 (.031)	.012 (.028)	.011 (.028)
Time relaxing (hours)	−.025 (.017)	−.027 (.016)	−.022* (.010)	−.021* (.010)
Time at work (hours)	.025* (.010)	.027** (.010)	.015 (.008)	.015* (.008)
Time with children (hours)	−.001 (.007)	−.002 (.007)	−.003 (.008)	−.003 (.008)
Time in transit (hours)	.011 (.024)	.003 (.024)	.033 (.018)	.032 (.018)
Number of roles	.037* (.017)	.002 (.026)	.049* (.022)	.034 (.029)
Number of places	−.005 (.018)	−.068* (.026)	.004 (.020)	−.011 (.028)
Role switches	--	.034** (.012)	--	.017 (.014)
Setting switches	--	.038*** (.011)	--	.011 (.012)
Complete switches	--	.054** (.016)	--	.012 (.015)
Constant	.883* (.357)	1.095** (.357)	.565 (.346)	.618 (.352)
R^2	.450	.455	.423	.422

* p < .05,

** p < .01,

*** p < .001 (two-tailed tests)

[a] Estimates are weighted to adjust for oversampling, non-response, and to ensure equal representation for each day of the week. Models account for survey design, and include controls for race/ethnicity, education, health, whether R was “well rested,” hypertension, R’s self-rated tiredess, sadness, and happiness, time spent at home, day of the week, and the number of non-switches in R’s sequence.