Differences in Time Use and Activity Patterns When Adding a Second Job: Implications for Health and Safety in the United States

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Objectives. We compared work and lifestyle activities for workers who work in 1 job with those who work in multiple jobs during a 1-week period.

Methods. We used information from the 2003–2011 American Time Use Survey to classify workers into 6 work groups based on whether they were a single (SJH) or multiple (MJH) job holder and whether they worked their primary, other, multiple, or no job on the diary day.

Results. The MJHs often worked 2 part-time jobs (20%), long weekly hours (27% worked 60+ hours), and on weekends. The MJHs working multiple jobs on the diary day averaged more than 2 additional work hours (2.25 weekday, 2.75 weekend day; $P < .05$), odd hours (more often between 5 PM and 7 AM), with more work travel time (10 minutes weekday, 9 minutes weekend day; $P < .05$) and less sleep (–45 minutes weekday, –62 minutes weekend day; $P < .05$) and time for other household ($P < .05$) and leisure ($P < .05$) activities than SJHs.

Conclusions. Because of long work hours, long daily commutes, multiple shifts, and less sleep and leisure time, MJHs may be at heightened risk of fatigue and injury. (*Am J Public Health.* 2014;104:1488–1500. doi:10.2105/AJPH.2014.301921)

Over the past 5 decades, there have been revolutionary changes in the organization and nature of work in the United States. The implications of those changes on the health and safety of workers are discussed in a report that describes a national agenda for research on this topic[1] with a focus on a shift in the organization of work centered on employer-restructuring activities.

For instance, contracting out specific work tasks or flexible staffing are examples of widespread changes adopted by employers, especially during recent economic downturns.[2–4] This can result in job instability, reduced work hours, and a reduction in benefits or pay, requiring workers to incorporate lifestyle changes to maintain their standard of living. One potential change would be to seek additional work, possibly a second job, for supplemental income.[2,3] Alternatively, some workers moonlight to enhance entrepreneurial opportunities or pursue a hobby or special interest.[5–7] In 2012, 8.5% of the employed workforce in the United States worked in more than 1 job during a 1-week period.[8]

In a previous study[9] in which we used data from the US National Health Interview Survey (NHIS), we found that workers with more than 1 job in a 1-week period (multiple jobholders [MJHs]) had a higher risk of injury than single job holders (SJHs). This finding was consistent for both work and nonwork injuries; the rate remained elevated even after we controlled for hours worked. Two other recent studies in the United States have also shown elevated risk of injury for MJHs: an elevated rate of work-related fatalities for MJHs was reported in Kentucky,[10] and an elevated rate and severity of injury was reported for adolescent MJHs in Wisconsin.[11]

There are several potential reasons why work in multiple jobs may be associated with an increased risk of injury, including the possibility of fatigue as a result of extra hours worked, less time sleeping, and working odd shifts to fit multiple jobs into a work week.[12–15] Basner et al.[16] used American Time Use Survey (ATUS) data and found that more work time resulted in less sleep time and that people working in multiple jobs worked longer and slept less to earn the same amount of money as people with 1 job.

We used ATUS data to further explore similarities and differences in the components of work and lifestyle activities for workers who work in only 1 job compared with workers who work in multiple jobs during a 1-week period. We compared activities of daily living between MJHs and SJHs and looked discretely at how activities change (duration and time of day) over the course of a 24-hour period if a worker is engaged in work (in 1 or multiple jobs) or not during the day, testing the hypothesis that MJHs have as much time for rest and leisure as SJHs.

METHODS

The ATUS, administered by the US Census Bureau for the Bureau of Labor Statistics, is a probability-weighted, cross-sectional survey that uses a sampling design that randomly selects 1 person (aged 15 years or older) from each household to be interviewed from a subset of households that have completed their eighth and final month of interviews for the Current Population Survey, the primary source of labor force statistics for the United States. Approximately 2100 people are selected to be interviewed each month with a response rate between 53% and 57% (2003–2011).

The goal of the survey is to develop nationally representative estimates of how people spend their time. The ATUS respondents are interviewed by telephone with a structured interview including demographics, work and home life characteristics, and usual weekly work hours at their primary job, their other job(s), and at all jobs. Respondents also complete a separate diary component wherein they

provide the start and end time of every activity they participated in during the previous 24-hour period (4 AM to 4 AM). Activities are coded by trained coders at the ATUS telephone center where interviews are conducted.

We collapsed the 406 lexicon activities into 8 major categories, with 17 subcategories (Table A, available as a supplement to the online version of this article at http://www.ajph.org). The data were available from the Bureau of Labor Statistics in preconfigured pooled data sets (2003–2011) with weights generated with comparable methods across all years. We restricted our cohort to those employed in the past week and those aged 18 years and older, because high-school adolescents can have very different work and lifestyles from adults, yet often work in multiple jobs.

Work Group Classification

We classified workers as those who reported either "Employed, at work" or "Employed, absent" when queried about work in the past 7 days. We further classified workers as SJHs or MJHs by using a subsequent question: "In the LAST SEVEN DAYS, did you have more than one job [or business], including part-time, evening or weekend work?" Those responding "yes" were categorized as MJHs; those responding "no" were categorized as SJHs.

We used the diary component of the interview to further classify workers into 1 of 6 work groups depending on whether they worked their primary job, other job, multiple jobs, or did not work on the diary day. The 6 work groups for comparison were

1. MJHs working only in their primary job on diary day;
2. MJHs working only in their other job(s) on diary day;
3. MJHs working in multiple jobs on diary day;
4. MJHs not working on diary day;
5. SJHs working in their primary job on diary day; and
6. SJHs not working on diary day.

Other variables of interest from the structured interview included age, gender, education, geographic region of residence, presence of a spouse or partner in the household, presence of children younger than 18 years in the household, occupation category, weekend or weekday diary day, and usual hours worked weekly. We assigned workers into general occupation categories (blue collar, white collar, or service) based on the ATUS primary job and census occupation group codes.[17]

Analyses

Sample weights were provided by the Bureau of Labor Statistics. Weights were constructed so that each day of the week is correctly represented for the sample month (in 2003 and 2004) or the sample quarter (in 2005 and later). An adjusted weight is provided for use on all records in multiyear files. As a consequence, all sample records when weighted will represent the US population count accumulated on an individual day. Because we were reporting on diary activities on a single day, we reported on the average daily number of workers over the 9 years of study data (2003–2011). This was obtained by dividing the sample weights value by the number of days in that 9-year period or 3287 days (e.g., 365 days per year; 366 days per leap year).[18] We calculated average daily population figures for each demographic and work characteristic for all MJHs and all SJHs, and across all 6 work groups, as well as the weighted mean hours spent per day in each activity. We used SAS version 9.3 PROC SURVEY MEANS (SAS Institute, Cary, NC) with the DOMAIN statement to generate these statistics.

From the activity diary we compared the weighted number and proportion of workers who participated in each activity category, and the mean duration (hours ± 95% confidence intervals) spent in each activity during the diary day for each of the 6 work groups. To make equivalent comparisons across all activities, workers who did not participate in an activity (0 hours per day) were included in the average time spent in any activity. Therefore, when there is low participation in an activity (e.g., < 50%), the average time spent in that activity will be lower than the actual time spent by those who did participate. Both participation and duration should be considered when one is comparing the work groups.

We used multivariate regression models to determine if the difference in the duration spent in an activity between MJHs and SJHs was significantly different when we controlled for other work or demographic factors (age, gender, education, occupation, spouse, or children aged < 18 years present in the household); SJHs working on the diary day was the referent group for the 3 MJH working groups, and SJHs not working was the referent group for MJHs not working. We ran regression models by using the REG procedure in Stata version 11 (StataCorp LP, College Station, TX), which took into account sample weights. To explore how activities differed on weekdays versus weekend days between MJHs and SJHs, we stratified our analyses by the day the interview occurred (i.e., weekend day vs weekday).[8]

Finally, we compared and plotted the proportion of workers in each of the 6 work groups who participated in the following activities during each hour of the day: working, doing housework, home maintenance activities, and sleeping. We plotted times of day on a weekend day and weekday separately.

RESULTS

Of the employed sample aged 18 years or older interviewed by the US Census over the 9-year period, a total of 76 747 had complete information about single or multiple job holding work status (unweighted n = 7539 MJHs; n = 69 208 SJHs). When weighted, this represents daily averages of 14.3 million MJHs and 131.5 million SJHs, aged 18 years and older, working in the United States (Table 1).

Prevalence of Multiple Job Holders

With the ATUS sample, we estimated that 9.8% of US workers (aged 18 years or older) worked in more than 1 job during a 1-week period between 2003 and 2011 (Table 1). There was a significantly ($P < .05$) higher prevalence of MJHs among younger workers aged 18 to 24 years (12%), those with no spouse or partner present in the household (11%), those with some college or higher (11%), those living in the Midwest (11%), those having a family-owned business (18%), and the self-employed (unincorporated, 12%).

Twenty percent of all MJHs worked part time (≤ 30 hours a week) in their primary job compared with 14% of all SJHs (Table 1); however, when we compared total hours worked, 8% of all MJHs worked less than 30

TABLE 1—Demographic and Work Characteristics and Average Weekly Work Hours of Employed US Population Aged 18 Years and Older for 6 Work Groups: The American Time Use Survey, 2003–2011

	Multiple Job Holders					Single Job Holders					
Characteristics	All MJHs, Weighted No. (Thousands)[a] (%)	Worked Only in Primary Job on Diary Day, Weighted No. (Thousands)[a] (%)	Worked Only in Other Job(s) on Diary Day, Weighted No. (Thousands)[a] (%)	Worked in Multiple Jobs on Diary Day, Weighted No. (Thousands)[a] (%)	Did Not Work on Diary Day, Weighted No. (Thousands)[a] (%)	All SJHs, Weighted No. (Thousands)[a] (%)	Worked in Primary Job on Diary Day, Weighted No. (Thousands)[a] (%)	Did Not Work on Diary Day, Weighted No. (Thousands)[a] (%)	MJH Prevalence (95% CI)	% Working on Diary Day	
										MJH	SJH
Total	14 304 (100)	6238 (100)	1568 (100)	3753 (100)	2745 (100)	131 497 (100)	89 039 (100)	42 458 (100)	9.8 (9.5, 10.1)	81	68
Diary day											
Weekend (Sat–Sun)	4102 (29)	1143 (18)	882 (56)	420 (11)	1657 (60)	37 309 (28)	11 695 (13)	25 614 (60)	9.9 (9.5, 10.3)	60	31
Weekday (Mon–Fri)	10 202 (71)	5095 (82)	686 (44)	3333 (89)	1087 (40)	94 188 (72)	77 344 (87)	16 844 (40)	9.8 (9.4, 10.2)	89	82
Age, y											
18–24	2184 (15)	1038 (17)	177 (11)	405 (11)	563 (21)	16 750 (13)	10 452 (12)	6298 (15)	11.5[b] (10.4, 12.7)	74	62
25–34	3138 (22)	1414 (23)	325 (21)	797 (21)	602 (22)	28 888 (22)	19 792 (22)	9096 (21)	9.8 (9.1, 10.5)	81	69
35–54	6726 (47)	2838 (45)	811 (52)	1868 (50)	1209 (44)	61 323 (47)	42 368 (48)	18 955 (45)	9.9 (9.5, 10.3)	82	69
≥ 55	2257 (16)	947 (15)	256 (16)	682 (18)	371 (14)	24 537 (19)	16 427 (18)	8110 (19)	8.4[b] (7.8, 9.0)	84	67
Gender											
Male	7490 (52)	3312 (53)	832 (53)	2102 (56)	1244 (45)	70 132 (53)	49 321 (55)	20 811 (49)	9.7 (9.2, 10.1)	83	70
Female	6814 (48)	2926 (47)	736 (47)	1651 (44)	1500 (55)	61 366 (47)	39 718 (45)	21 648 (51)	10.0 (9.6, 10.4)	78	65
Occupation category											
Blue collar	2474 (17)	1064 (17)	269 (17)	684 (18)	457 (17)	30 219 (23)	20 173 (23)	10 046 (24)	7.6[b] (7.0, 8.2)	82	67
White collar	9116 (64)	3997 (64)	997 (64)	2442 (65)	1680 (61)	78 837 (60)	54 700 (61)	24 137 (57)	10.4 (10.0, 10.7)	82	69
Service	2714 (19)	1177 (19)	302 (19)	628 (17)	608 (22)	22 441 (17)	14 166 (16)	8276 (19)	10.8 (10.0, 11.5)	78	63
Spouse or partner present in house											
Spouse present	7867 (55)	3261 (52)	908 (58)	2244 (60)	1454 (53)	77 993 (59)	53 261 (60)	24 732 (58)	9.2[b] (8.8, 9.5)	82	68
Unmarried partner present	585 (4)	282 (5)	49 (3)	160 (4)	95 (3)	6552 (5)	4577 (5)	1975 (5)	8.2 (6.9, 9.5)	84	70
No spouse or partner present	5852 (41)	2695 (43)	611 (39)	1350 (36)	1196 (44)	46 953 (36)	31 201 (35)	15 752 (37)	11.1[b] (10.5, 11.6)	80	66
Children aged < 18 years present in house											
Yes	5848 (41)	2473 (40)	685 (44)	1518 (40)	1172 (43)	56 897 (43)	38 288 (43)	18 608 (44)	9.3 (9.0, 9.7)	80	67
No	8457 (59)	3765 (60)	883 (56)	2235 (60)	1573 (57)	74 601 (57)	50 751 (57)	23 850 (56)	10.2 (9.7, 10.6)	81	68
Education											
< high school	751 (5)	306 (5)	78 (5)	174 (5)	193 (7)	13 184 (10)	8573 (10)	4611 (11)	5.4[b] (4.6, 6.1)	74	65
High-school graduate	3548 (25)	1559 (25)	395 (25)	915 (24)	678 (25)	39 490 (30)	26 097 (29)	13 393 (32)	8.2[b] (7.7, 8.8)	81	66
Some college	2980 (21)	1214 (19)	357 (23)	699 (19)	711 (26)	24 231 (18)	15 805 (18)	8426 (20)	11.0[b] (10.2, 11.7)	76	65
Associate's degree	1478 (10)	677 (11)	179 (11)	377 (10)	246 (9)	12 213 (9)	8167 (9)	4046 (10)	10.8 (9.9, 11.7)	83	67

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TABLE 1—*Continued*

Bachelor's degree	3568 (25)	1635 (26)	377 (24)	955 (25)	601 (22)	27 615 (21)	19 463 (22)	8152 (19)	11.4[b] (10.8, 12.1)	83	70
> bachelor's degree	1980 (14)	848 (14)	182 (12)	634 (17)	316 (12)	14 764 (11)	10 933 (12)	3830 (9)	11.8[b] (11.0, 12.6)	84	74
Geographic region of residence											
Northeast	2430 (17)	1048 (17)	258 (16)	609 (16)	515 (19)	24 150 (18)	16 309 (18)	7841 (18)	9.1 (8.5, 9.8)	79	68
Midwest	4023 (28)	1735 (28)	472 (30)	1092 (29)	724 (26)	32 440 (25)	21 799 (24)	10 641 (25)	11.0[b] (10.4, 11.7)	82	67
South	4755 (33)	2106 (34)	516 (33)	1205 (32)	928 (34)	45 705 (35)	30 881 (35)	14 824 (35)	9.4 (8.9, 9.9)	80	68
West	3096 (22)	1350 (22)	321 (20)	847 (23)	578 (21)	29 202 (22)	20 050 (23)	9152 (22)	9.6 (9.0, 10.2)	81	69
Hours worked/wk all jobs											
≤ 10 (> 0)	127 (1)	40 (1)	10 (1)	14 (0)	63 (2)	4019 (3)	1689 (2)	2330 (5)	3.1[b] (2.1, 4.0)	51	42
11–20	319 (2)	105 (2)	37 (2)	54 (1)	123 (4)	4149 (3)	2025 (2)	2125 (5)	7.1[b] (5.8, 8.5)	61	49
21–30	702 (5)	261 (4)	97 (6)	123 (3)	220 (8)	10 185 (8)	6060 (7)	4124 (10)	6.4[b] (5.6, 7.3)	69	60
31–40	1250 (9)	576 (9)	115 (7)	251 (7)	308 (11)	16 555 (13)	10 809 (12)	5746 (14)	7.0[b] (6.2, 7.8)	75	65
41–50	3304 (23)	1678 (27)	317 (20)	631 (17)	678 (25)	66 808 (51)	46 084 (52)	20 724 (49)	4.7[b] (4.4, 5.0)	79	69
51–60	3380 (24)	1417 (23)	415 (26)	991 (26)	557 (20)	15 083 (11)	11 471 (13)	3611 (9)	18.3[b] (17.3, 19.4)	84	76
> 60	3879 (27)	1499 (24)	450 (29)	1452 (39)	479 (17)	8448 (6)	6952 (8)	1496 (4)	31.5[b] (29.9, 33.0)	88	82
0 or missing	1343 (9)	663 (11)	127 (8)	237 (6)	317 (12)	6251 (5)	3950 (4)	2301 (5)	17.7[b] (16.0, 19.3)	76	63
Hours worked/wk primary job											
≤ 10 (> 0)	394 (3)	99 (2)	58 (4)	74 (2)	163 (6)	4019 (3)	1689 (2)	2330 (5)	8.9 (7.5, 10.4)	59	42
11–20	649 (5)	228 (4)	81 (5)	126 (3)	214 (8)	4149 (3)	2025 (2)	2125 (5)	13.5[b] (11.6, 15.5)	67	49
21–30	1663 (12)	696 (11)	200 (13)	348 (9)	418 (15)	10 185 (8)	6060 (7)	4124 (10)	14.0[b] (12.8, 15.3)	75	60
31–40	2373 (17)	1022 (16)	315 (20)	632 (17)	403 (15)	16 555 (13)	10 809 (12)	5746 (14)	12.5[b] (11.6, 13.5)	83	65
41–50	6552 (46)	2852 (46)	708 (45)	1840 (49)	1152 (42)	66 808 (51)	46 084 (52)	20 724 (49)	8.9[b] (8.5, 9.3)	82	69
51–60	1431 (10)	707 (11)	116 (7)	394 (10)	215 (8)	15 083 (11)	11 471 (13)	3611 (9)	8.7[b] (7.9, 9.5)	85	76
>60	798 (6)	445 (7)	45 (3)	241 (6)	66 (2)	8448 (6)	6952 (8)	1496 (4)	8.6 (7.6, 9.6)	92	82
0 or missing	444 (3)	190 (3)	43 (3)	97 (3)	113 (4)	6251 (5)	3950 (4)	2301 (5)	6.6[b] (5.4, 7.8)	75	63
Hours worked/wk other jobs											
≤ 10 (> 0)	6681 (47)	3243 (52)	603 (38)	1415 (38)	1419 (52)					79	
11–20	2665 (19)	1086 (17)	327 (21)	769 (20)	483 (18)					82	
21–30	2520 (18)	828 (13)	359 (23)	955 (25)	377 (14)					85	
31–40	683 (5)	259 (4)	106 (7)	252 (7)	66 (2)					90	
41–50	291 (2)	65 (1)	38 (2)	144 (4)	44 (2)					85	
51–60	38 (0)	14 (0)	2 (0)	17 (0)	5 (0)					88	
>60	27 (0)	7 (0)	7 (0)	12 (0)	1 (0)					95	
0 or missing	1398 (10)	736 (12)	126 (8)	188 (5)	348 (13)	131 497 (100)	89 039 (100)	42 458 (100)	1.1[b] (0.9, 1.2)	75	

Note. CI = confidence interval; MJH = multiple job holder; SJH = single job holder.
[a]Daily averages.
[b]Prevalence of MJH statistically different from overall ($P < .05$).

TABLE 2—Percentage Participation and Mean Hours Per Day Spent in Each Activity on Diary Day, Weekdays (Monday–Friday), for Multiple Job Holders Aged 18 Years and Older in 6 Work Groups: The American Time Use Survey, 2003–2011

Activity	Worked Only in Primary Job on Diary Day		Worked Only in Other Job(s) on Diary Day		Worked in Multiple Jobs on Diary Day		Did Not Work on Diary Day	
	Weighted Mean Hours/ Day[a] (95% CI)	% Reporting Activity	Weighted Mean Hours/ Day,[a] (95% CI)	% Reporting Activity	Weighted Mean Hours/ Day[a] (95% CI)	% Reporting Activity	Weighted Mean Hours/ Day[a] (95% CI)	% Reporting Activity
All activities	24.00	100.0	24.00	100.0	24.00	100.0	24.00	100.0
Personal care	9.39 (9.26, 9.51)	100.0	10.19 (9.89, 10.49)	100.0	8.68 (8.55, 8.80)	100.0	10.95 (10.58, 11.32)	100.0
Sleeping[b]	7.55 (7.44, 7.67)	99.8	8.42 (8.10, 8.73)	99.4	6.96 (6.85, 7.07)	99.9	9.06 (8.75, 9.37)	99.8
Other personal care[c]	0.80 (0.75, 0.84)	90.9	0.77 (0.68, 0.86)	84.1	0.75 (0.71, 0.78)	90.5	0.73 (0.57, 0.88)	72.2
Eating or drinking	1.04 (0.99, 1.09)	94.0	1.00 (0.89, 1.11)	89.9	0.96 (0.91, 1.01)	95.4	1.16 (1.06, 1.27)	94.0
Household activities	1.09 (1.00, 1.18)	71.2	1.58 (1.34, 1.82)	78.3	1.18 (0.98, 1.39)	67.4	2.25 (1.95, 2.54)	83.0
Housework,[d] food or drink preparation,[e] animal or pet care,[f] household management[g]	0.83 (0.77, 0.90)	67.6	1.36 (1.15, 1.57)	75.4	0.68 (0.62, 0.75)	65.0	1.59 (1.36, 1.82)	77.0
Interior[h] or exterior[i] maintenance, repair, decoration, lawn or garden care,[j] vehicle, appliance[k] self-repair or maintenance	0.25 (0.19, 0.32)	13.3	0.22 (0.12, 0.32)	13.9	0.13 (0.09, 0.18)	10.6	0.65 (0.44, 0.85)	21.7
Household activities, NEC	0.00 (0.00, 0.00)	0.8	0.00 (0.00, 0.00)	0.1	0.00 (0.00, 0.00)	0.0	0.00 (0.00, 0.00)	0.5
Caring for or helping household and nonhousehold members	0.46 (0.39, 0.53)	36.3	0.61 (0.45, 0.77)	38.3	0.37 (0.32, 0.42)	32.9	0.97 (0.75, 1.19)	43.6
Children (< 18 y)[l]	0.38 (0.33, 0.44)	25.9	0.51 (0.37, 0.65)	27.4	0.31 (0.27, 0.36)	24.7	0.70 (0.52, 0.89)	31.1
Adults (≥ 18 years)[m]	0.08 (0.05, 0.10)	13.7	0.10 (0.02, 0.18)	15.4	0.06 (0.04, 0.08)	11.2	0.27 (0.14, 0.41)	21.6
NEC	0.00 (0.00, 0.00)	0.0	0.00 (0.00, 0.00	0.2	0.00 (0.00, 0.00)	0.1	0.00 (0.00, 0.01)	0.0
Work-related activities	7.82 (7.65, 7.98)	100.0	5.36 (4.84, 5.88)	100.0	10.16 (9.96, 10.37)	100.0	0.15 (0.07, 0.22)	3.9
Main job	7.77 (7.60, 7.93)	100.0	0.00 (0.00. 0.00)	0.0	7.05 (6.88, 7.22)	100.0	0.00 (0.00. 0.00)	0.0
Other job(s)	0.00 (0.00, 0.00)	0.0	5.31 (4.79, 5.82)	100.0	3.06 (2.90, 3.22)	100.0	0.00 (0.00. 0.00)	0.0
Main job + other job(s)	7.77 (7.60, 7.93)	100.0	5.31 (4.79, 5.82)	100.0	10.11 (9.90, 10.31)	100.0	0.00 (0.00. 0.00)	0.0
Other income activities[n]	0.03 (0.01, 0.04)	1.1	0.01 (-0.00, 0.03)	0.8	0.03 (-0.00, 0.06)	1.5	0.11 (0.04, 0.19)	2.8
Other work activities[o]	0.02 (0.01, 0.03)	3.6	0.03 (0.00, 0.06)	4.4	0.02 (0.01, 0.03)	3.9	0.03 (0.01, 0.06)	1.5

Continued

TABLE 2—*Continued*

Education activities[p]	0.25 (0.16, 0.34)	5.9	0.34 (0.16, 0.51)	8.1	0.09 (0.05, 0.13)	3.0	0.79 (0.49, 1.10)	16.0
Other activities[q]	3.28 (3.15, 3.42)	95.2	4.19 (3.81, 4.56)	95.5	2.31 (2.18, 2.43)	93.2	6.09 (5.66, 6.52)	95.4
Other leisure activities[r]	3.07 (2.94, 3.19)	93.5	3.82 (3.45, 4.19)	93.2	2.16 (2.04, 2.28)	91.0	5.64 (5.21, 6.07)	94.5
Other nonleisure activities[s]	0.22 (0.19, 0.25)	36.2	0.37 (0.27, 0.47)	43.5	0.15 (0.12, 0.18)	32.0	0.45 (0.33, 0.57)	45.8
Participate in sports, exercise, and recreation	0.23 (0.19, 0.27)	18.6	0.23 (0.13, 0.34)	18.0	0.13 (0.11, 0.15)	12.5	0.46 (0.28, 0.64)	19.0
Travel	1.38 (1.33, 1.44)	97.0	1.41 (1.26, 1.56)	92.2	1.36 (1.30, 1.42)	98.1	1.84 (1.56, 2.13)	91.3
Travel related to work	0.61 (0.57, 0.65)	87.4	0.43 (0.36, 0.49)	70.6	0.83 (0.79, 0.88)	93.0	0.02 (0.01, 0.03)	3.5
Leisure travel[t]	0.29 (0.26, 0.32)	51.8	0.34 (0.27, 0.42)	53.1	0.22 (0.19, 0.24)	44.0	0.61 (0.47, 0.75)	65.0
Nonleisure travel[u]	0.47 (0.44, 0.51)	61.9	0.62 (0.51, 0.73)	66.8	0.31 (0.28, 0.34)	52.5	1.12 (0.87, 1.38)	77.5
Travel, NEC	0.01 (0.01, 0.02)	3.4	0.01 (0.00, 0.03)	5.2	0.02 (0.02, 0.03)	3.2	0.09 (0.03, 0.15)	7.8
NEC data codes	0.10 (0.08, 0.13)	11.3	0.10 (0.06, 0.14)	13.9	0.09 (0.06, 0.12)	9.6	0.50 (0.18, 0.82)	16.3

Note. CI = confidence interval; NEC = not elsewhere classified.
[a]Weighted means are for the total average daily population of each work group regardless of whether they participated in the activity on the diary day.
[b]Of the survey respondents, 1634 did not report any time for sleep on diary day.
[c]Grooming, health-related self-care, personal care activities, personal care emergencies.
[d]Interior cleaning, laundry, sewing or repair.
[e]Food or drink preparation, presentation, clean up.
[f]Not veterinary.
[g]Financial management, household or personal organization, mail and e-mail, security.
[h]Interior arrangement, decoration, repair, build or repair furniture, heating or cooling.
[i]Exterior cleaning, repair, improvements, decoration.
[j]Lawn, garden care, house plant, pond, pool, hot tub care or maintenance.
[k]Self-repair or maintenance of appliances, tools, toys.
[l]Physical care, reading to, playing with (not sports), arts and crafts, playing sports, talking to, organization or planning for, attending events, waiting for, picking up or dropping off, homework, school meetings or conferences, providing or obtaining medical care for children.
[m]Physical care, providing or obtaining medical care, waiting for, picking up or dropping off, organization or planning for, physical assistance for adults.
[n]Income-generating hobbies, crafts, food, performances, services, rental property activities.
[o]Socializing or leisure, eating or drinking, sports or exercise, security procedures as part of job, job search or interview activities, other work-related activities.
[p]Coursework for degree, certificate, or license; class for personal interest; extracurricular clubs, music, or performances; student government; research or homework for class; administrative activities related to classes.
[q]Consumer purchases; professional or personal care services; household services; government services or civic obligations; socializing, relaxing, or leisure; attending sports or recreational events; religious or spiritual activities; volunteer activities.
[r]Shopping (not groceries or gas); socializing; attending parties, receptions, or ceremonies; personal meetings; social events; relaxing; tobacco or drug use; watching television or movies; listen to radio or music; playing games; computer use for leisure; arts and crafts; collecting; hobbies; reading or writing for personal interest; attending performing arts; museums; movies or film; gambling; watching live sporting events; attending religious services or events; volunteer work; telephone calls for leisure or socializing.
[s]Grocery shopping; purchasing gas or food; researching purchases; using childcare services; using banking or other financial services; using legal services; using health, medical, or care services; using real estate services; using veterinary services; using professional personal services (e.g., cleaning, clothing repair, meal preparation, home maintenance, lawn or garden services); using police or fire services; using social services; obtaining licenses; paying fines, fees, or taxes; civic obligations; telephone calls to or from service providers.
[t]Travel related to eating or drinking, socializing, attending social events, relaxing, leisure, arts and entertainment, participating or attending sporting or recreational events, attending religious events, volunteer activities.
[u]Travel related to personal care; household activities; caring for or helping household and nonhousehold individuals; education; consumer purchases; using financial, banking, or legal services; using real estate services; using medical, personal, or health services; using household, lawn or garden, or maintenance services; using government services; civic obligations.

TABLE 3—Percentage Participation and Mean Hours Per Day Spent in Each Activity on Diary Day, Weekdays (Monday–Friday), for Single Job Holders Aged 18 Years and Older in 6 Work Groups: The American Time Use Survey, 2003–2011

Activity	Worked in Primary Job on Diary Day		Did Not Work on Diary Day	
	Weighted Mean Hours/Day[a] (95% CI)	% Reporting Activity	Weighted Mean Hours/Day[a] (95% CI)	% Reporting Activity
All activities	24.00	100.0	24.00	100.0
Personal care	9.57 (9.55, 9.60)	100.0	11.08 (11.00, 11.17)	100.0
Sleeping[b]	7.73 (7.70, 7.75)	99.9	9.20 (9.12, 9.28)	99.9
Other personal care[c]	0.79 (0.78, 0.80)	91.2	0.74 (0.70, 0.78)	71.8
Eating or drinking	1.05 (1.04, 1.06)	96.1	1.14 (1.11, 1.17)	94.8
Household activities	1.02 (1.00, 1.04)	72.1	2.57 (2.48, 2.66)	79.5
Housework,[d] food or drink preparation,[e] animal or pet care,[f] household management[g]	0.83 (0.82, 0.85)	68.6	1.91 (1.84, 1.98)	74.4
Interior[h] or exterior[i] maintenance, repair, decoration, lawn or garden care,[j] vehicle, appliance[k] self-repair or maintenance	0.19 (0.18, 0.20)	12.7	0.66 (0.60, 0.71)	22.7
Household activities, NEC	0.00 (0.00, 0.00)	0.2	0.01 (0.00, 0.01)	0.2
Caring for or helping household and nonhousehold members	0.45 (0.44, 0.47)	36.4	1.03 (0.97, 1.09)	46.0
Children (< 18 y)[l]	0.40 (0.39, 0.41)	28.5	0.83 (0.77, 0.88)	32.7
Adults (≥ 18 years)[m]	0.06 (0.05, 0.06)	11.2	0.20 (0.17, 0.22)	19.6
NEC	0.00 (0.00, 0.00)	0.0	0.00 (0.00, 0.00)	0.1
Work-related activities	7.92 (7.88, 7.96)	100.0	0.09 (0.07, 0.11)	3.6
Main job	7.89 (7.85, 7.92)	100.0	0.00 (0.00. 0.00)	0.0
Other job(s)	0.00 (0.00, 0.00)	0.0	0.00 (0.00. 0.00)	0.0
Main job + other job(s)	7.88 (7.85, 7.92)	100.0	0.00 (0.00. 0.00)	0.0
Other income activities[n]	0.01 (0.01, 0.01)	0.5	0.04 (0.03, 0.06)	1.3
Other work activities[o]	0.03 (0.03, 0.03)	3.7	0.05 (0.04, 0.06)	2.5
Education activities[p]	0.14 (0.12, 0.15)	4.2	0.59 (0.50, 0.68)	10.2
Other activities[q]	3.25 (3.22, 3.28)	95.9	6.45 (6.34, 6.57)	98.1
Other leisure activities[r]	3.07 (3.04, 3.10)	94.9	6.03 (5.91, 6.14)	97.3
Other nonleisure activities[s]	0.18 (0.17, 0.18)	33.1	0.43 (0.40, 0.46)	45.4
Participate in sports, exercise, and recreation	0.19 (0.19, 0.20)	16.4	0.40 (0.36, 0.44)	18.5

Continued

hours a week compared with 14% of all SJH. The proportion of people working more than 50 hours a week was much higher for all MJHs than all SJHs (51% vs 18%). A higher proportion of all MJHs than all SJHs were working on a weekday (89% vs 82%) and on a weekend day (60% vs 31%) when interviewed, indicating that MJHs were working more days of the week than SJHs.

Proportionate distributions of work and demographic characteristics among the 6 work groups are also shown in Table 1. Those working in multiple jobs on the diary day reported working longer weekly work hours (39% working 60 or more hours a week) than any other work group. Many MJHs working only in their other job(s) were working on the weekend when interviewed (56%), whereas fewer MJHs working multiple jobs and SJHs working their primary jobs were working on the weekend when interviewed (11% and 13%, respectively).

Average Time Spent in Each Activity on Diary Day

The average time spent (hours per day) in each activity category on the diary day (weekday only) for multiple job holders is shown in Table 2 and for single job holders is shown in Table 3 (a corresponding table for weekend diary day is presented in Table B, available as a supplement to the online version of this article at http://ww.ajph.org). The difference in minutes spent on each activity based on the multivariate model, with control for covariates and using the most comparable SJH work group for each MJH group, is found in Table 4.

Multiple job holders and single job holders working their primary job on the diary day. Notable differences include MJHs sleeping less time than SJHs (23 minutes less on weekend days, 12 minutes less on weekdays; $P < .05$), balanced by more time in household activities (6 minutes more on weekdays; $P < .05$) and in other leisure and nonleisure travel (5 minutes more on weekdays; $P < .05$), and working longer (27 minutes more on weekend days; $P < .05$; Table 4).

Multiple job holders working only their other job(s) on the diary day. The MJHs working only

TABLE 3—*Continued*

Travel	1.33 (1.32, 1.35)	97.5	1.52 (1.46, 1.57)	84.8
Travel related to work	0.66 (0.65, 0.67)	88.0	0.03 (0.02, 0.03)	2.6
Leisure travel[t]	0.24 (0.24, 0.25)	46.8	0.56 (0.52, 0.60)	55.9
Nonleisure travel[u]	0.41 (0.40, 0.42)	56.2	0.88 (0.84, 0.92)	72.7
Travel, NEC	0.02 (0.01, 0.02)	2.5	0.05 (0.03, 0.07)	4.9
NEC data codes	0.11 (0.10, 0.12)	11.1	0.27 (0.23, 0.31)	15.5

Note. CI = confidence interval; NEC = not elsewhere classified.
[a]Weighted means are for the total average daily population of each work group regardless of whether they participated in the activity on the diary day.
[b]Of the survey respondents, 1634 did not report any time for sleep on diary day.
[c]Grooming, health-related self-care, personal care activities, personal care emergencies.
[d]Interior cleaning, laundry, sewing or repair.
[e]Food or drink preparation, presentation, clean up.
[f]Not veterinary.
[g]Financial management, household or personal organization, mail and e-mail, security.
[h]Interior arrangement, decoration, repair, build or repair furniture, heating or cooling.
[i]Exterior cleaning, repair, improvements, decoration.
[j]Lawn, garden care, house plant, pond, pool, hot tub care or maintenance.
[k]Self-repair or maintenance of appliances, tools, toys.
[l]Physical care, reading to, playing with (not sports), arts and crafts, playing sports, talking to, organization or planning for, attending events, waiting for, picking up or dropping off, homework, school meetings or conferences, providing or obtaining medical care for children.
[m]Physical care, providing or obtaining medical care, waiting for, picking up or dropping off, organization or planning for, physical assistance for adults.
[n]Income-generating hobbies, crafts, food, performances, services, rental property activities.
[o]Socializing or leisure, eating or drinking, sports or exercise, security procedures as part of job, job search or interview activities, other work-related activities.
[p]Coursework for degree, certificate, or license; class for personal interest; extracurricular clubs, music, or performances; student government; research or homework for class; administrative activities related to classes.
[q]Consumer purchases; professional or personal care services; household services; government services or civic obligations; socializing, relaxing, or leisure; attending sports or recreational events; religious or spiritual activities; volunteer activities.
[r]Shopping (not groceries or gas); socializing; attending parties, receptions, or ceremonies; personal meetings; social events; relaxing; tobacco or drug use; watching television or movies; listen to radio or music; playing games; computer use for leisure; arts and crafts; collecting; hobbies; reading or writing for personal interest; attending performing arts; museums; movies or film; gambling; watching live sporting events; attending religious services or events; volunteer work; telephone calls for leisure or socializing.
[s]Grocery shopping; purchasing gas or food; researching purchases; using childcare services; using banking or other financial services; using legal services; using health, medical, or care services; using real estate services; using veterinary services; using professional personal services (e.g., cleaning, clothing repair, meal preparation, home maintenance, lawn or garden services); using police or fire services; using social services; obtaining licenses; paying fines, fees, or taxes; civic obligations; telephone calls to or from service providers.
[t]Travel related to eating or drinking, socializing, attending social events, relaxing, leisure, arts and entertainment, participating or attending sporting or recreational events, attending religious events, volunteer activities.
[u]Travel related to personal care; household activities; caring for or helping household and nonhousehold individuals; education; consumer purchases; using financial, banking, or legal services; using real estate services; using medical, personal, or health services; using household, lawn or garden, or maintenance services; using government services; civic obligations.

at their other job(s) worked fewer hours than did SJHs working their primary job, especially if on a weekday (145 minutes less; 22 minutes less on a weekend day; $P<.05$; Table 4); however, they still worked much more than half of a typical workday (more than 5 hours). If working on a weekday, these MJHs were using their free time that day doing household activities (31 minutes more compared with SJHs; $P<.05$), caring for and helping household members (9 minutes more; $P<.05$), in education activities (11 minutes more; $P<.05$), in other leisure and nonleisure activities (54 minutes more; $P<.05$), and in other leisure and nonleisure travel (18 minutes more; $P<.05$; Table 4). With the time they had left over, they were able to sleep more (39 minutes more; $P<.05$). If both SJHs and MJHs were working on the weekend, differences were not as large because SJHs generally work fewer hours at a primary job on a weekend day, similar to the duration of MJHs.

Multiple job holders working multiple jobs on the diary day. The MJHs working multiple jobs on the diary day worked more than 2 additional hours a day (2.25 more hours on weekdays; 2.75 more hours on weekend days; $P<.05$; Table 4), and spent more time traveling for work (10 minutes more on weekdays, 9 minutes more on weekend days; $P<.05$) than SJHs but slept substantially less. The reduction in time sleeping, after we controlled for covariates, amounted to 45 minutes less on weekdays and 62 minutes less on weekend days ($P<.05$). These MJHs also spent less time in other leisure activities (54 minutes less on a weekday, and 73 minutes less on a weekend day; Table 4) on the diary day.

Multiple job holders and single job holders not working on the diary day. On a nonworking day, MJHs spent less time sleeping and in leisure activities than SJHs on a nonworking day (11 minutes less sleeping on a weekday and 10 minutes less on a weekend day, 21 minutes less in leisure activities on a weekday and 12 minutes less on weekend days). The MJHs, instead, spent more time traveling (18 minutes more on a weekday and 7 minutes more on a weekend day; $P<.05$) and in other income-generating activities such as hobbies, crafts, rental properties, and performances (5 minutes more on a weekday and 3 minutes more on a weekend day; $P<.05$). If not working on a weekday, MJHs spent less time in housework (13 minutes less; $P<.05$) than SJHs, and on a weekend day they spent more time doing interior or

TABLE 4—Difference in Minutes Spent in Each Activity for Multiple Job Holder Groups Compared With Single Job Holder Groups Stratified by Weekdays or Weekend Days: The American Time Use Survey, 2003–2011

Activities	Worked Only in Primary Job on Diary Day		Worked Only in Other Job(s) on Diary Day		Worked in Multiple Jobs on Diary Day		Did Not Work on Diary Day	
	Weekday, Min	Weekend Day, Min	Weekday, Min	Weekend Day, Min	Weekday, Min	Weekend Day, Min	Weekday, Min	Weekend Day, Min
Personal care								
Sleeping[a]	−11.8*	−22.9*	39.4*	12.2*	−44.5*	−62.0*	−11.2	−10.0*
Other personal care[b]	−0.4	−0.9	−3.5	0	−2.6*	−3.3	−1.1	−1.6
Eating or drinking	−0.5	1.2	1.8	1.4	−6.1*	−1.3	1.3	−0.8
Household activities	6.4*	3.1	30.5*	−1.6	−11.9*	20.3*	−7.9	11.8*
Housework[c], food or drink preparation,[d] animal or pet care,[e] household management[f]	1.1	7.1	27.1*	−0.8	−8.6*	−15.8*	−12.7*	2.22
Interior[g] or exterior[h] maintenance, repair, decoration, lawn or garden care,[i] vehicle, appliance[j] self-repair or maintenance	5.3*	−4.0	3.4	−0.6	−3.2*	−4.4*	4.4	9.7*
Household activities, NEC	−0.1*	−0.1	−0.1*	−0.1*	−0.1*	−0.1*	0.4	0.4
Caring for or helping household and nonhousehold members	0.7	−3.4	9.0*	−0.7	−5.4*	−4.7	−1.2	0.8
Children (< 18 y)[k]	−0.5	−3.2	6.2	−2.8	−5.6*	−3.2	−6.4	−2.8
Adults (≥ 18 years)[l]	1.1	−0.2	2.7	2.1	0.2	−1.4	5.3	3.2
NEC	0.0	0	0.0	0	0.0	0	−0.1	0.3
Work-related activities	−3.8	27.2*	−144.8*	−21.5*	134.8*	164.6*	3.3	3.4*
Main job	−4.5	25.0*	−462.0*	−317.9*	−49.7*	−58.6*	. . .	. . .
Other job(s)	. . .	. . .	318.6*	296.4*	183.7*	221.9*	. . .	. . .
Main job + other job(s)	−4.5	25.0*	−145.4*	−21.5*	134.0*	163.3*	. . .	. . .
Other income activities[m]	1.0*	1.5	0.3	−0.2	1.3	−0.24	4.5*	3.0*
Other work activities[n]	−0.4	0.6	0.3	0.2	−0.2	1.56	−1.2	0.4
Education activities[o]	4.3	−0.4	11*	0.96	−2.9	0.36	0.3	−0.7
Other activities[p]	2.6	−7.8	54.4*	6.6	−55.9*	−71.2*	−19.4	−11.2
Other leisure activities[q]	0.5	−8.3	43.4*	6.3	−53.9	−73.1*	−21.1	−12.1
Other nonleisure activities[r]	2.1*	0.5	10.7*	0.3	−2.0*	1.92	1.7	0.9
Participate in sports, exercise, and recreation	1.1	2.2	2.2	−0.84	−5.0*	−4.9*	3.1	3.5

Continued

exterior home maintenance (10 minutes more; $P<.05$).

Time of Day

From the 24-hour diary data we were able to plot the proportion of workers participating in each of the following grouped activities during each hour of the day: working, doing housework, home maintenance activities, and sleeping (Figure 1). The time of day that MJHs and SJHs were working in their primary job on a weekday (Figure 1a, blue vs red solid lines) was very similar with proportionally slightly fewer MJHs working in the daytime hours and more working during the evening hours (after 5 PM). Bigger differences showed up for those who worked multiple jobs during the diary day (Figure 1a, black lines), where there was a lot more work participation, especially in the evening. The MJHs working their other job, even on a weekday (solid green line), worked very similar schedules to many of the other work groups that worked on weekend days (all dotted lines, including SJHs; e.g., less participation during the morning coupled with about twice the participation in the evening as SJHs working their primary job). The MJHs working in multiple jobs on a weekend diary day were the work group with the greatest proportion of workers working the late-night hours (7 PM to 7 AM).

Although MJHs working weekdays in all groups had similar proportions participating in housework and home maintenance in the evening hours as SJHs working weekdays, they had higher participation early in the day on days they were working their other job (Figure 1b and 1c). This pattern was similar for weekend work groups and, as expected, the highest proportion of workers was doing these activities on a nonworking day (Figure 1c).

There were also slight variations in the proportions of workers sleeping at different times of the day (Figure 1d), which explains the difference in duration of sleep time between MJHs and SJHs and weekday versus weekend (Tables 2 and 3). On weekdays MJHs had very similar proportions sleeping at all hours in the morning as SJHs working in their primary job. However, for MJHs working in their other job on the diary day, a higher proportion of

TABLE 4—*Continued*

Travel	2.1	−1.1	0.1	5.16	1.0	7.4	17.8*	7.3*
Travel related to work	−3.1*	−0.7	−12.7*	−2.5	10.1*	8.9*	−0.4	0.1
Leisure travel[s]	2.1*	−0.1	10.0*	4.9*	−3.1*	−2.6	2.1	4.6
Nonleisure travel[t]	3.2*	−0.1	11.9*	2.8	−6.2*	1.9	14.3	1.4
Travel, NEC	−0.1	−0.1	−0.1	−0.1	0.2	−0.8*	1.7	1.2

Note. NEC = not elsewhere classified. Controlled for age, gender, education, occupation, presence of spouse or partner in house, and children aged younger than 18 years. Multivariate regression model: reference group for all multiple job holder groups that were working on diary day work was single job holders working in primary job. Reference group for the multiple job holder group that did not work on diary day was single job holders who did not work on diary day.

[a]1634 survey respondents did not report any time for sleep on diary day.

[b]Grooming, health-related self-care, personal care activities, personal care emergencies.

[c]Interior cleaning, laundry, sewing or repair.

[d]Food or drink preparation, presentation, clean up.

[e]Not veterinary.

[f]Financial management, household or personal organization, mail and e-mail, security.

[g]Interior arrangement, decoration, repair, build or repair furniture, heating or cooling.

[h]Exterior cleaning, repair, improvements, decoration.

[i]Lawn, garden care, house plant, pond, pool, hot tub care or maintenance.

[j]Self-repair or maintenance of appliances, tools, toys.

[k]Physical care, reading to, playing with (not sports), arts and crafts, playing sports, talking to, organization or planning for, attending events, waiting for, picking up or dropping off, homework, school meetings or conferences, providing or obtaining medical care for children.

[l]Physical care, providing or obtaining medical care, waiting for, picking up or dropping off, organization or planning for, physical assistance for adults.

[m]Income-generating hobbies, crafts, food, performances, services, rental property activities.

[n]Socializing or leisure, eating or drinking, sports or exercise, security procedures as part of job, job search or interview activities, other work-related activities.

[o]Coursework for degree, certificate, or license; class for personal interest; extracurricular clubs, music, or performances; student government; research or homework for class; administrative activities related to classes.

[p]Consumer purchases; professional or personal care services; household services; government services or civic obligations; socializing, relaxing, or leisure; attending sports or recreational events; religious or spiritual activities; volunteer activities.

[q]Shopping (not groceries or gas); socializing; attending parties, receptions, or ceremonies; personal meetings; social events; relaxing; tobacco or drug use; watching television or movies; listen to radio or music; playing games; computer use for leisure; arts and crafts; collecting; hobbies; reading or writing for personal interest; attending performing arts; museums; movies or film; gambling; watching live sporting events; attending religious services or events; volunteer work; telephone calls for leisure or socializing.

[r]Grocery shopping; purchasing gas or food; researching purchases; using childcare services; using banking or other financial services; using legal services; using health, medical, or care services; using real estate services; using veterinary services; using professional personal services (e.g., cleaning, clothing repair, meal preparation, home maintenance, lawn or garden services); using police or fire services; using social services; obtaining licenses; paying fines, fees, or taxes; civic obligations; telephone calls to or from service providers.

[s]Travel related to eating or drinking, socializing, attending social events, relaxing, leisure, arts and entertainment, participating or attending sporting or recreational events, attending religious events, volunteer activities.

[t]Travel related to personal care; household activities; caring for or helping household and nonhousehold individuals; education; consumer purchases; using financial, banking, or legal services; using real estate services; using medical, personal, or health services; using household, lawn or garden, or maintenance services; using government services; civic obligations.

*$P < .05$.

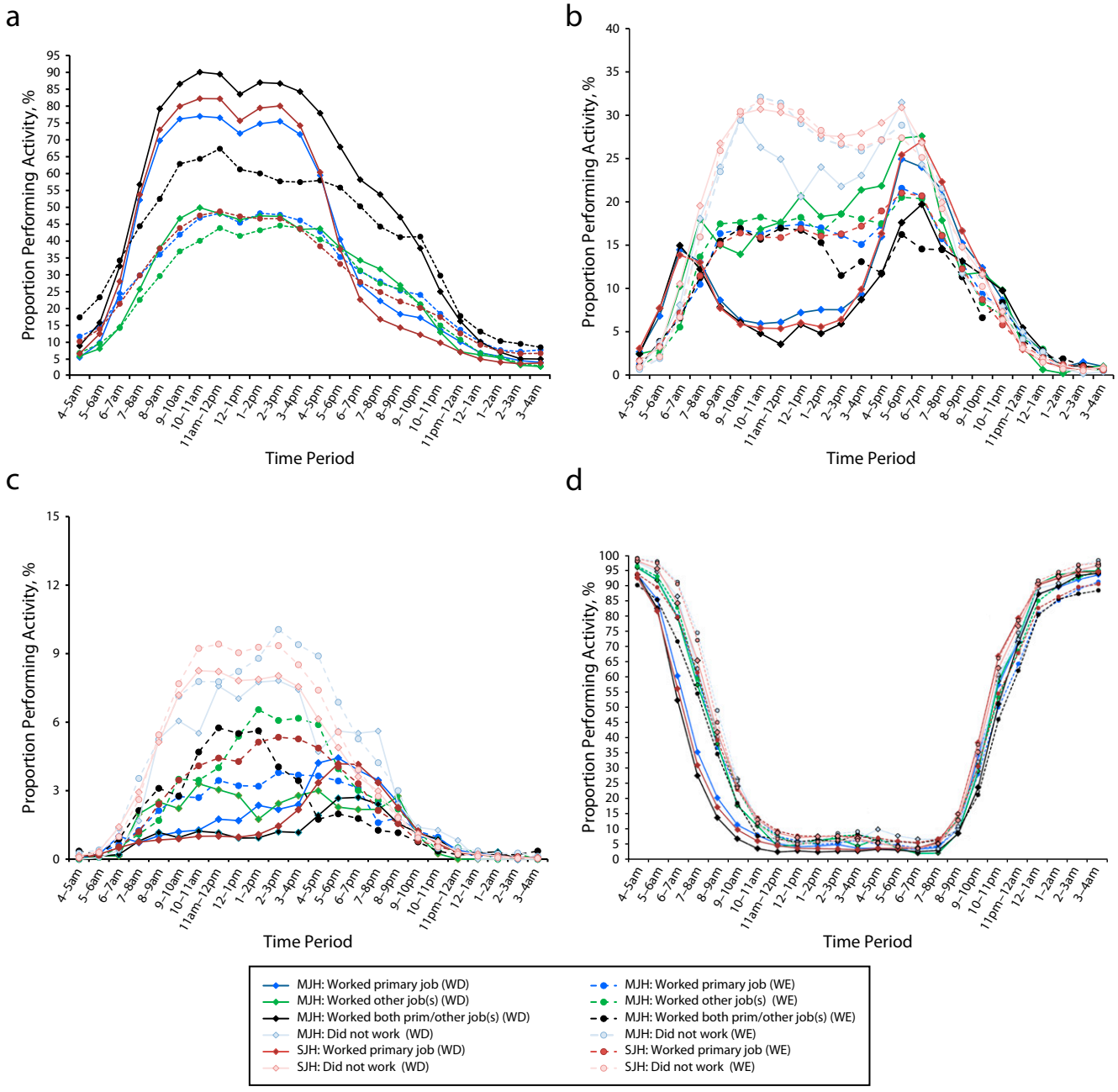
workers slept later. In addition, on weekdays, at every hour after 8 PM, proportionally more SJHs were sleeping than MJHs.

DISCUSSION

We explored time use patterns for MJHs, which now constitute almost 10% of the US working population, and compared them with those of SJHs. We found that 20% of MJHs were working 2 part-time jobs versus 14% of SJHs who were working 1 part-time job, with MJHs working longer weekly hours (27% vs 6%, respectively, working ≥ 60 hours a week). With the ATUS 24-hour diary of workers, we were also able to show large differences in work schedule and time use patterns for MJHs compared with SJHs; MJHs had much longer work and travel to work times, leaving much less sleep and less time for other household and leisure activities than SJHs.

The largest distinction in time durations were when MJHs were working in multiple jobs on their diary day (e.g., they spent 2.25 more hours working on a weekday and 2.75 more hours on a weekend day; 45 minutes less time sleeping on a weekday and 62 minutes less on a weekend day; and 10 minutes more time traveling for work on a weekday and 9 minutes more on a weekend day than SJHs). This work group also had the highest participation in work and travel during nonregular hours (between 5 PM and 7 AM). The MJHs also spent more time in other income-generating and travel activities on days off than did SJHs. It was surprising that many of the weekly household chores and other travel (both leisure and nonleisure) appeared to be accomplished on a day when MJHs were working their other job. They spent significantly more time doing household chores if working in their other job on a weekday than on any other day that included work, indicating that they may be trying to preserve nonworking days for leisure. There was also evidence that MJHs were trying to "fit everything" into a tight schedule, sometimes fitting in activities (work and nonwork), such as household activities, at different times of the day compared with SJHs.

In a recent study we found that people who were working in multiple jobs in the United States were at higher risk for injury than those working in 1 job.[19] Even after we controlled for usual weekly work hours, MJHs were still at



Note. MJH = multiple job holder; SJH = single job holder; WD = weekday; WE = weekend day. Each work group has the same color. Weekday times are plotted with diamonds and solid lines, weekend hours with circles and dotted lines. Nonworking days are grayed out.

FIGURE 1—Proportion of workers participating in specific activity by (a) time of day working (b) time of day doing housework, (c) time of day doing home maintenance activities and (d) time of day sleeping: The American Time Use Survey, 2003–2011.

elevated risk for injury compared with SJHs, which indicates that long work hours were not the only factor leading to this increased risk.

Although there have been several studies demonstrating an increased risk of work-related injury associated with work-related fatigue, these studies have focused on either long work hours (and the usual corollary of fewer sleep hours), or shift work, most prominently the "graveyard shift."[13–15] Work schedule guidelines, including rest breaks, have been developed for employers and employees to alleviate the potential for fatigue on the job resulting from long work hours. Similarly, there are work schedule guidelines attempting to minimize the long-term health and safety effects of workers who must work during the night or weekend shifts.[14,20–22] However, most of these scheduling guidelines focus on the potential flexibility afforded by 1 employer, assuming each employer can adjust the rotation

or length of schedules of their employees to get work done safely around the clock. Additional work being done for an alternate employer may compromise the safety of a worker unbeknownst to the first employer and, for many service workers (transport, hospital), may also compromise the safety of people around them.

We believe that many MJHs may be working shift work that is awkwardly scheduled to accommodate hours offered by 2 or more separate employers. These employers may not be aware that an employee is working in another job. A significant limitation in understanding the injury risk between MJHs and SJHs is that there simply are no employment or injury surveys that routinely collect information on the work schedules of people who are working in multiple jobs over the course of a week or a year (including seasonal work). Therefore, there is no way to accurately quantify the risk of injury for the varied circumstances of multiple job holding, or to understand which MJH work schedules present the highest injury risk to help determine appropriate interventions.

Other recent reports have found that people working part-time is at an all-time high.[4,23] When economic conditions are poor and as work environments and practices change, we may see growth in part-time work and, consequently, growth in MJHs trying to make up lost earnings because of work hours being cut from their primary job.

Benefits and Limitations

The ATUS is the largest annual survey of daily activities in the United States. It is strategically designed to report nationally representative time use for each day of the week and year and does not rely on a proxy response, which is important for reporting of certain activities that may not be as prominent or easily defined by others in a household. By using this rich data source, we were able to effectively compare the time use patterns of workers who work in multiple jobs with those who work in 1 job during the week, and to explore patterns of daily nonwork activities in the same diary day. Finally, the ATUS provides data pooled over many years, which streamlines the analyses, and includes weights that are comparable across years.

However, our findings were limited to activities performed by MJHs in only a single 24-hour period. We could not determine the weekly representation of the time use data for MJHs. That is, some MJHs may have been working in multiple jobs every day they worked over a 1-week period, but were surveyed on a day when they did not work, and yet others may only work alternating days in different jobs over the week. We anticipate that these 2 very different weekly work schedules would yield different patterns of daily activities that we were not able to study. In addition, representativeness of the findings may be compromised because of the ATUS's low response rates (53%–57%), smaller work groups may have limited power in the multivariate analyses, and sleep time is likely overestimated in the ATUS compared with other studies because of the inclusion of certain pre- and postsleep activities in the grouped lexicon (e.g., time spent falling asleep, waking up).[16]

Conclusions

From our results, we found large differences in time use patterns for MJHs compared with SJHs. We conclude that MJHs may be at heightened risk for fatigue compared with SJHs because of a combination of the following factors: long work hours concurrent with multiple shifts during the same or alternating day, longer daily commute time, performing potentially risky home maintenance activities during the morning or after work hours, trimming down time spent on necessary daily activities, and having less sleep and leisure time left in the week to recover. More research is needed to further explore the consequences of these differences in time use patterns. ■

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Contributors

H. R. Marucci-Wellman, as principal investigator and lead author, was instrumental in the development of the study and analyses. T.-C. Lin contributed to study design and development of data analyses strategies, and performed some data analyses. J. L. Willetts contributed to study design, data analyses, data interpretation, and writing. M. J. Brennan contributed to study design, literature review, data interpretation, and editing of the final article. S. K. Verma contributed to study design, development of data analyses strategies, data interpretation, and writing.

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Human Participant Protection

Institutional review board approval was not needed because this was a database study and no participants were involved.

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