The goals of this article are (a) to describe the daily life of the very old in terms of frequency, duration, variety, and social and physical contexts of activities, and (b) to examine the effects of background variables (e.g., age, sex, residential and marital status, income, and education) on late life activity engagement. A representative sample of 516 adults aged 70–105 was interviewed about their activities using the Yesterday Interview. In contrast to most research on activity engagement, this measurement approach allows for assessment of both the type and context of activities engaged in during the day preceding the interview. The results indicated high frequencies of obligatory activities but also showed substantial time spent in discretionary activities, with television viewing occupying most of the participants' leisure time. Most activities were done alone and at home. In bivariate and multiple regression analyses, age and residential status had the strongest association with activity frequency, duration, and variety; the oldest-old and those residing in long-term care facilities had lower levels of activity engagement. Results are discussed in terms of their relevance for successful aging.
Key Words: Successful aging, Oldest-old, Long-term care

Daily Life in Very Old Age: Everyday Activities as Expression of Successful Living

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It is surprising that despite the wealth of knowledge about aging and elderly adults, relatively little is known about the daily life of older adults (Altergott, 1988; Herzog, Kahn, Morgan, Jackson, & Antonucci, 1989; Moss & Lawton, 1982; Verbrugge, Gruber-Baldini, & Fozard, 1996). This is particularly true for those older than 70 years of age. Most of the knowledge that we do have about elders' everyday activities stems from clinical geriatrics. The focus of that body of work has been on assessing difficulties in ac-

tivities of daily living (ADLs) and instrumental activities of daily living (IADLs), and determining when one requires assistance or when one's performance level is insufficient for independent living (i.e., Katz, Ford, Moskowitz, Jackson, & Jaffee, 1963). Furthermore, what is known with regard to the larger picture of daily life in old age is usually based on subjective ratings of engagements over the last month (or some other time interval) and concentrates on the types of activity, disregarding the temporal, physical, and social context of these activities (see summary from different nations in Altergott, 1988). This focused approach is largely because the memory performance involved in reporting such data has been questioned as to its veridicality. Information about how elderly adults structure and organize their daily lives when there are seemingly no longer any social or time constraints, however, requires the assessment of activities in context. In what activities do elders engage, when, where, and with whom?

Aside from the interest in a picture of daily life in old age, knowledge about everyday activities in old age is important for several reasons. First, information about everyday activities can provide insight into elders' goals and motivation. Activities are regarded as goal-related (Gärling & Garvill, 1993; Kuhl, 1986), and everyday activities represent the primary means by which broader life goals are pursued and attained. People select the activities in which they will invest time and attention from among an enormous variety of possible activities. Thus, the sum of choices describes a person's day and reflects his or her immediate

priorities and goals. These daily choices shape the content and structure of the person's entire life. Second, aside from reflecting one's internal constraints and opportunities (e.g., elders' goals, motivation, skills, preferences, needs, and wishes), everyday activities are also affected by external opportunities and constraints that foster and hinder participation in certain types of activities or influence how one structures daily life. At the most basic level, Hanson and Hanson (1993) propose three universal principles that underlie participation in daily activities: (a) each and every person has only 24 hours in a day, (b) no one can be in more than one place at one point in time, and (c) no one can move instantaneously from one place to another. Thus, time and space represent the most basic influence on activity participation. A person's day, therefore, consists of not only the nature and diversity of activities in which one engages, but also the dimensions of time use and spatial reach. In addition, there is a social dimension to "daily" or "everyday" activities (i.e., Lehr & Thomae, 1991) in the sense that social expectations, norms, roles and functions also influence which activities will be chosen. As such, the day represents a unit of time, embedded in physical and social contexts, which create opportunities and restrictions for the occurrence of behaviors or activities. The more often these activities are repeated at a specific time, in a specific location, alone or with others, the more likely it is that they become the behavioral norm for a typical day (Braudel, 1992). Thus, a random sample of the aged population on a person-day basis can provide a representative picture of the everyday activities of a nation's elders and provide a glimpse into factors that influence successful activity engagement.

Such theoretical considerations about everyday activities have led to specific content classifications. The goal orientation approach is captured in the distinction between obligatory and discretionary activities (Moss & Lawton, 1982; Szalai, 1972) or consummatory and instrumental activities (Gärling & Garvill, 1993). The clinical practice orientation has led to the differentiation between ADLs and IADLs (Katz et al., 1963). From the perspective of successful aging, both approaches to the categorization of activities are important. In Western cultures, successful living requires different daily activities, and engagement in those activities that ensure personal maintenance (e.g., eating, bathing, dressing) are considered a basic ingredient of a successful life. The person who engages in more than just basic activities, who takes part in the external environment, who turns toward others, and who engages in self-enriching activities is considered more successful. Thus, it seems important to differentiate between three types of everyday activities: (a) basic activities as those pertaining to personal maintenance in physical survival terms; (b) instrumental activities as those referring to personal maintenance in cultural survival terms; and (c) work, leisure and social activities as those reflecting agentic, communal, and self-enriching activities. Engagement in each of these activity categories can be influenced by the opportunities and restrictions imposed by macro- and micro-social structures. As such, factors such as resi-

dence, socioeconomic status, education, age, marital status and gender can act as resources or barriers to activity participation (Singleton, Forbes, & Agwani, 1993). Age, sex, and residential status, for instance, are associated with basic personal activities; people in advanced old age, women, and nursing home residents have lower functional performance levels in terms of ADLs and IADLs than their counterparts (Guralnik & Simonsick, 1993; Verbrugge, 1989). Education, income, and marital status are expected to exert their influence on discretionary (e.g., work, leisure, and social) activity engagement (Altergott, 1990; Clark, 1995).

Thus, the purpose of this study was twofold: (a) to provide a full description of daily life in the very old that considers frequency, duration, variety, and context of activities, and (b) to assess the effects of background variables such as age, gender, socioeconomic status, education, residence, and marital status on indicators of daily activities. Because of our broader conceptualization of "everyday," we wanted to go beyond the usual time budget approach in our assessment of everyday activities (Altergott, 1988; Szalai, 1972; Verbrugge et al., 1996). Therefore, we chose to employ an expanded time diary strategy (see also Robinson & Nicosia, 1991) using the Yesterday Interview (Moss & Lawton, 1982). This instrument allows a minute-by-minute reconstruction of the day preceding the interview, enabling assessment of the frequency and duration of activities in the activity profile, the richness of activities (activity variety), and the breadth of the activity contexts in terms of physical and social environments. Given our orientation that activities are not only an expression of needs, preferences, and motivations but also reflect external constraints and opportunities, we hypothesized that daily life might look different for people with different background variables. Age, gender, marital status, education, residential status and SES are the most basic determinants of living status (Elder, 1985; Hobfoll, 1988, 1989). In sum, we address the following questions in this article:

1. How do men and women 70 years of age and older spend their day? In order to answer this question, we will describe activity profiles in terms of the frequency of activities, the duration of time spent in activities, and the variety of activities, as well as their physical and social contexts. Further, similarities and differences between days of the week (e.g., weekdays and weekend days) and typical and atypical days will be examined.
2. How are the daily activity profile and its contexts affected by background variables such as age, gender, education, and marital, socioeconomic, and residential status? First, the bivariate effects of these personal characteristics will be examined in relation to the frequency, duration, and variety of activities across domains. Second, multiple regression analyses will be used to predict activity frequency, duration, and variety from the background variables in order to determine the strongest predictors of the different activity dimensions.

Methods

Sample

This study was conducted as part of the Berlin Aging Study (BASE; Mayer & P. Baltes, 1996). BASE was designed to be representative of the western part of the city of Berlin and is a probability sample of community-dwelling and institutionalized individuals aged 70–105 years, oversampling men and the very old. The sample was drawn from the city registration office (in Germany, each citizen is registered) and consists of equal numbers of men and women in six age brackets (70–74, 75–79, 80–84, 85–89, 90–94, 95+ years). When conducting various selectivity and representivity analyses, P. Baltes, Mayer, Helmchen, and Steinhagen-Thiessen (1993) demonstrated that the present sample, which completed all 14 sessions of the BASE protocol, maintains, by and large, its original heterogeneity. Comparisons of the sample with the Berlin census data on indices such as marital status, proportion of institutionalized persons, education, and income level showed no significant differences. The only exception was the 12-month mortality rate: subjects completing the full data protocol, on average, had a lower mortality rate than dropouts.

The total sample of participants completing the entire data protocol consists of 516 subjects with a mean age of 84.9 years (SD = 8.7). There were 43 men and women in each five-year age bracket; 86.4% lived in the community and 13.6% resided in long-term care institutions (e.g., assisted living or nursing homes). From these 516 participants, 485 had valid data on the Yesterday Interview. A total of 31 participants had to be excluded; 10 due to an incomplete interview, 8 due to implausible data, 6 due to reconstruction of less than half the day, and 2 due to data provided mainly by a social partner present during the interview. Of the 31 subjects, 26 had a diagnosis of mild to moderate dementia. See Table 1 for a demographic description of the study sample.

Measurement Instruments

Yesterday Interview.—The Yesterday Interview, developed by Moss and Lawton (1982), was used to assess everyday activities and their contexts. Type, frequency, and duration of activities engaged in by the participant during the day preceding the interview as well as contextual dimensions of the activity (e.g., location and presence of social partners) were assessed. The day started when the person awoke and ended when he or she fell asleep. All activities mentioned by the participants were coded into one of 44 types of activities (see Table 2).

Interrater reliabilities for activity codes yielded Kappa coefficients above .80. These 44 activities were then summed into eight main activity domains: basic personal maintenance; Instrumental Activities of Daily Living (IADLs); three types of leisure activities—television watching, reading, and "other leisure"; social activities; paid work; and resting. Basic personal maintenance and IADLs were considered obligatory activities; all other nonresting activities were considered

Table 1. Sample Characteristics (N = 485)

Characteristic and Values	N	%
Age		
70–84 years	252	52.0
85–103 years	233	48.0
Sex		
Female	235	48.5
Male	250	51.5
Marital status		
Married	152	31.3
Unmarried*	333	68.6
Education Level		
<10 years	327	68.7
≥10 years	149	31.1
Residential Status		
Private dwelling	429	88.5
Private house	396	81.6
Apartment building	33	6.8
Long-term care	56	11.5
Assisted living	36	7.4
Nursing home	20	4.1
Income		
≤2000 DM	261	53.8
>2000 DM	224	46.2

*Includes widowed, divorced, and never married participants.

discretionary. From the eight main activity domains, three summary variables were created: *Activity frequency* represents the total number of activities reported by the participant as being done in each of the eight main categories during the previous day; *activity duration* represents the total time (in minutes) spent in the main activity categories during the day; and *activity variety* is an indicator of the number of different types of activities within one category that are done during the day. For instance, eating, bathing, and grooming would be three different types of activities within the category of personal maintenance; its activity variety would equal 3. Waking and falling asleep were considered the start and end of the reported day and were not counted as separate activities.

All geographical locations reported were coded into seven categories: one's own room/apartment; private building (e.g., apartment building, nursing home public spaces); public building (e.g., bank, post office); others' private quarters (e.g., friend's apartment); transportation (e.g., bus, subway, car); outdoors; and miscellaneous other. In the present analyses, we dichotomized the activity locations into indoors versus outdoors. This variable is used as an indicator of physical context.

The social context of activities was also assessed. Specifically, for each activity reported, participants were asked, "Were you alone?" If they were not, they were probed for who was present during the activity: partner, children, relative, professional helper/caregiver, friend or acquaintance, roommate, or other. These social partner categories were coded into three main categories: alone, with family, and with others. Family consisted of spouse/partner, children, and relatives; others consisted of professional helpers,

Table 2. Activity Codes, Categories, and Percent Reporting

Main Category	Code	Activity	% Reporting
Personal Maintenance	01	Arising	96.7
	02	Personal care	97.7
	03	Eating	99.8
	04	Preparing for bed	98.1
	05	Miscellaneous other	0.6
Instrumental Activities of Daily Living (IADLs)	06	Shopping	38.6
	07	Light household chores	80.6
	08	Heavy household chores	5.8
	09	Handiwork/mending/sewing	9.7
	10	Other housework	44.1
	11	Banking	1.9
	12	Dealing with authorities/ institutions	1.2
	13	Dealing with the post office	6.4
	14	Dealing with other official institutions	4.7
	15	Medical treatment (e.g., getting X-rays)	13.4
	16	Self-treatment (e.g., taking a foot bath)	19.2
	40	Passive transportation (e.g., being driven)	25.6
	41	Active transportation (e.g., driving a car)	58.1
Leisure Activities			
Reading	24	Reading	74.0
Television	27	Watching TV	83.3
Other Leisure	17	Cultural activities	18.1
	18	Educational activities	1.2
	19	Sports	11.3
	20	Creative activities	3.5
	21	Gardening	21.6
	22	Walking	23.7
	23	Excursions	1.6
	25	Writing	5.2
	26	Playing	24.1
	28	Listening to radio/tape/record	28.0
	29	Church activities	6.2
	30	Political activities	1.0
	31	Other leisure activity	11.5
Social Activities	32	Talking to people	44.9
	33	Visiting	17.1
	34	Telephoning	23.3
	35	Other social activities	8.9
	38	Helping family members	6.0
	39	Helping other people	2.5
Paid Work	36	Regular paid work	2.1
	37	Other work	0.8
Resting	42	Sleeping during the day	43.7
	43	Doing nothing	79.2
	44	Planning	14.6

friends/acquaintances, and roommates (e.g., in nursing homes). In the present analyses, this social context variable was dichotomized into alone versus with others.

Background Characteristics.—Seven types of personal characteristics were considered in this study: age,

sex, education, marital status, residential status, and income. For the bivariate analyses, age was coded into three age decades (70s, 80s, and 90s+). In the regression analyses, age was used as a continuous variable. Sex was coded as 1 for women and 0 for men. Education was categorized as either low (0 = fewer than 10 years of formal schooling) or high (1 = 10 or more years of formal schooling). Marital status was dichotomized into married (1) versus unmarried (0; included single, divorced, and widowed participants). Residential status was also a dichotomous variable indicating that the participant resided either in a private residence (coded as 0; e.g., in own home or in apartment building) or in a long-term care setting (coded as 1; e.g., assisted living or nursing home). Monthly income was used as an indicator of social status and was coded as 1 for low (≤DM 2000) or 2 for high (>DM 2000). DM 2000 is roughly equivalent to $1,500 US.

Procedures

BASE is a multidisciplinary study comprised of scientists from the disciplines of psychology, sociology, psychiatry, and internal medicine/geriatrics. The intensive BASE research protocol consisted of 14 sessions. With the exception of some medical tests (e.g., carotid ultrasound), all sessions were conducted in participants' homes by the same trained interviewer. The basic resource variables used in this article were assessed in the first interview session. During the ninth session of the BASE intensive protocol, the Yesterday Interview was administered. Using an interview format, participants were prompted to recall the events of the previous day from waking to going to sleep (note that depending on the day of the interview, "yesterday" could be Sunday or Monday through Thursday). The interviewer recorded all reported information on a standardized form. After the participant listed all activities in the sequence and duration they occurred, the interviewer read each activity aloud and asked the participant to indicate where the activity took place and who was present during the activity. This procedure also allowed the participant to add activities that might have been forgotten initially. At the end of the interview, participants were asked to state whether the reconstructed day was a typical or atypical day. Interviewers also recorded the day of the week that "yesterday" represented.

Results

First, similarities and differences between typical and atypical days and between weekdays and weekends (Sundays) will be examined. Second, an average activity profile will be described in terms of frequency, duration, and variety of activities, as well as the social and physical context of activities. Note that in all these comparisons the time between midnight and 5:59 in the morning was not assessed. Third, bivariate relationships between background variables and activity frequency, duration, and variety will be examined using *t* tests and analysis of variance. Finally, activity frequency, duration, and variety across activity domains

will be predicted from the background variables using multiple regression.

Similarities and Differences Between Typical Versus Atypical Days and Weekdays Versus Weekends

With regard to typicality of the reconstructed day, the majority of participants defined their reported "yesterday" as typical (71.5%) rather than atypical (28.5%). Typical and atypical days were characterized more by their similarities than their differences. No differences were noted in time spent in personal maintenance, socializing, working, resting, or television watching. On atypical days, significantly more time was spent doing "other leisure" activities (140 min vs 106 min) and IADLs (211 min vs 168 min) and less time was spent reading (75 min vs 100 min). In addition, more time was spent outdoors (217 min vs 166 min) and with others (90 min vs 49 min) on atypical days [all F values (1,483) > 6.8, $p < .01$]. There were no significant differences in income, level of education, or residential status across typical or atypical days. Significant age and gender effects, however, were noted for typical versus atypical days. Participants reporting

typical days were significantly older than those describing atypical days (mean age = 82 vs 85 years) and were more likely to be men [$\chi^2 = 13.99$, df = 1, $p < .001$].

Differences between weekdays and Sundays were also examined. Only time spent performing IADLs [F (1,483) = 25.0, $p < .001$)] and outdoors [F(1,483) = 11.3, $p < .001$)] differed significantly between weekdays and Sundays. More time was spent on IADLs (38 min vs 12 min) and outside the home (196 min vs 129 min) on weekdays than on weekends. Because these differences between typical and atypical and weekdays and weekend days were few and relatively small in magnitude (average difference in specific activities was about 30 min), data were aggregated across all days in the analyses that follow.

A Description of Yesterday

Frequency and Duration of Activities.—Figure 1 presents the average profiles of activities for this sample of adults aged 70 and older. On the upper left, the mean number of activities reported in each of the main activity categories is presented. On the upper right, durations of activities (in minutes spent) are presented.
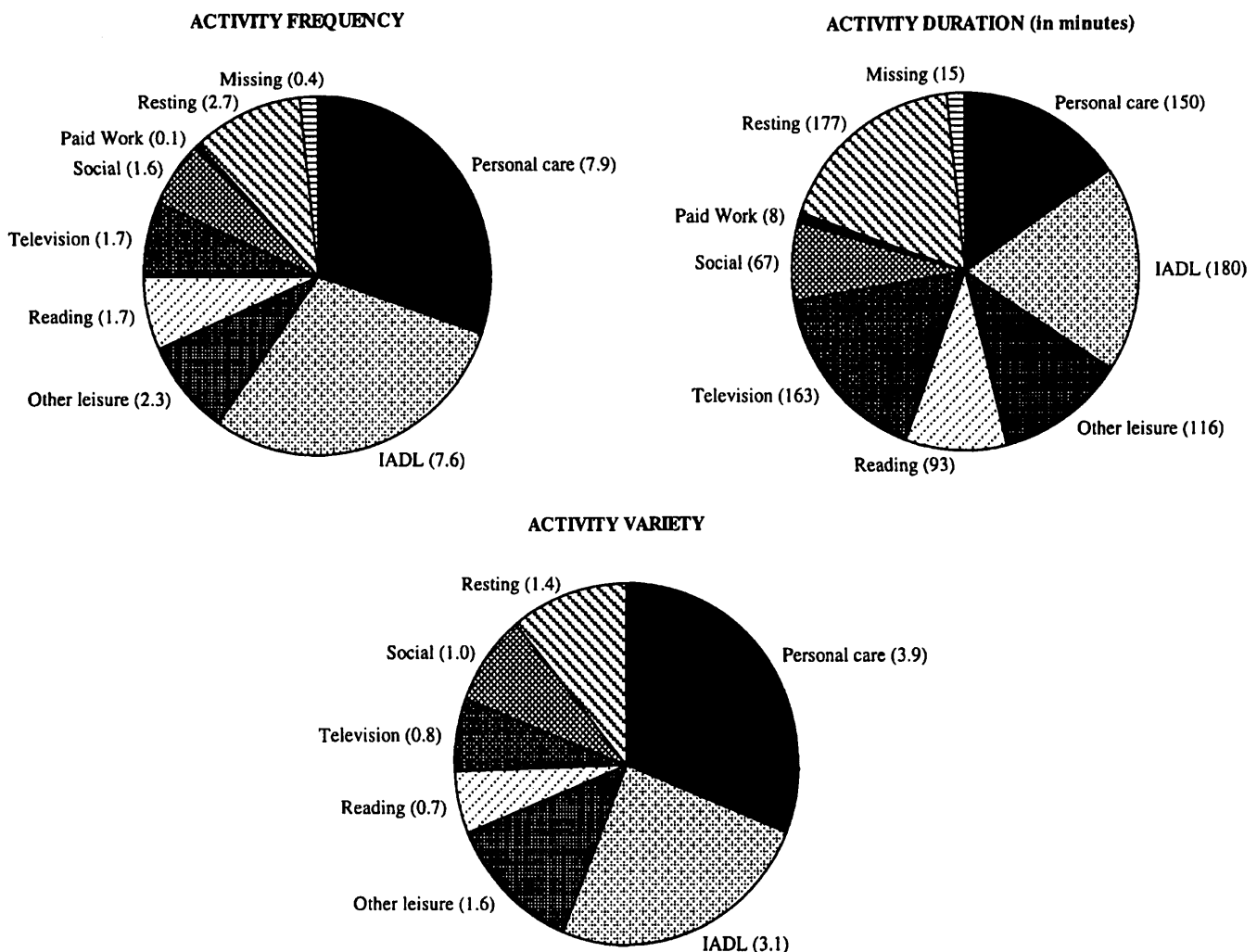

Figure 1. A description of how elders spend the day.

The Gerontologist

It should be noted that, on average, participants reported that their day was about 16 hours long (SD = 1.8 hrs, range = 10–22 hrs).

As can be seen, the frequency profile is quite different from the duration profile. For instance, basic personal maintenance activities are the most frequently occurring activities (mean = 7.9 activities) engaged in during the day, but they do not occupy the largest amount of time. Instead, the day is dominated by time spent watching television (17% of the day), instrumental activities (15% of the day), and other leisure activities (12% of the day). Indeed, the leisure activities of reading, television watching, and "other" occupy about one third of the waking day. In addition, resting consumes a substantial portion of the daytime (19% of the day). Thus, it is important to look at both frequency and duration data to get a complete picture of how the average day is spent.

It should be noted, however, that there is substantial variability in the amount of time spent with different activities during the day. Table 3 summarizes the means, standard deviations, and ranges across the different activity domains. Greater variability about the mean is observed for the duration variables than for the activity frequency or variety dimensions.

Variety Within Activities.—Variety in activities is a measure that goes beyond the basic level of the presence or absence of activities during the day by providing additional information about the diversity and richness of activities in which elderly adults engage. The variety of activities on an average day is presented in Figure 1 (bottom graph). Not surprisingly, the profile of activity variety appears quite similar to activity frequency because there is likely to be greater variety in activity categories that occur more often during the day. On average, participants reported doing about four different basic personal maintenance activities (mean = 3.9, range = 1–5) and three different IADLs (mean = 3.1, range = 0–8). Substantially less variety was noted in the overall leisure and social domains. Across all activity categories, participants averaged about 13 different activities during the day (mean = 12.6, range = 4–20).

Social and Physical Context.—With regard to time spent with social partners, most of the day was spent alone (mean duration = 626 min; about 10.5 hrs), followed by time spent with one's spouse/partner (mean duration = 173 min; about 3 hrs; see Figure 2). Time spent with roommate(s) or groups of people and professional caregivers consumed the next largest amount of time during the day, each representing about 40–50 minutes out of the day. The least amount of time was spent during the day with children, relatives, and friends; mean duration of time spent with each of these three categories of social partners was 15–20 minutes.

Elderly participants, on average, reported spending most of their day (about 12 hrs, 80% of day) in their own homes (including apartments and nursing homes). Less than one fourth (18.7%) of the day was spent outdoors (see Figure 2).

Bivariate Relationships Between Background Variables and Activity Indicators

Activity Frequency.—To examine the effects of background variables on activity duration, a series of univariate analyses of variance and t tests were done. Table 4 presents the mean frequency and significance tests for specific activities for each of the separate group comparisons. Due to the number of comparisons being made, only differences significant at the $p < .001$ level are indicated. As Table 4 shows, significant age group differences were noted in five of the eight activity categories. Participants older than age 90 performed significantly fewer instrumental activities, and fewer reading, television, and other leisure activities, but did more resting activities during the day [all F values (2,482) > 7.0, $p < .001$].

The same pattern of results was noted for residential status. Residing in a long-term care facility was associated with significantly fewer instrumental activities performed during the day as well as fewer reading, television watching, other leisure, and paid work activities. In addition, long-term care residents had significantly more resting periods [all t statistics range from 4.2–8.8, $p < .001$].

Table 3. Description of Activity Frequency, Duration, and Variety Across Domains

Activity Category	Frequency (No. of activities)		Duration (Min spent in activities)			Variety (No. of different activities)	
	Mean (*SD*)	Range	Mean	(*SD*)	Range	Mean (*SD*)	Range
Obligatory	15.6 (5.6)	3–36	337.6	(146.0)	75–840	7.1 (1.9)	1–12
Personal	7.8 (1.8)	3–16	150.1	(57.6)	34–510	3.9 (.3)	0–5
IADL	7.6 (5.1)	0–30	180.0	(127.8)	0–565	3.1 (1.8)	0–8
Discretionary	7.2 (3.5)	0–22	439.0	(179.1)	0–985	4.2 (1.8)	0–9
Watching TV	1.7 (1.2)	0–7	162.7	(129.4)	0–750	.8 (.4)	0–1
Reading	1.7 (1.4)	0–7	93.3	(95.5)	0–474	.7 (.4)	0–1
Other leisure	2.3 (2.0)	0–11	115.8	(115.8)	0–565	1.6 (1.2)	0–6
Paid work	.7 (.06)	0–7	7.4	(50.1)	0–580	.1 (.2)	0–1
Socializing	1.6 (1.6)	0–10	67.2	(84.2)	0–495	1.0 (.8)	0–4
Resting	2.7 (2.1)	0–13	177.2	(167.1)	0–925	1.4 (.7)	0–3

WITH WHOM THE DAY IS SPENT (in % of day)

Other (5.4%) Missing (1.3%)
Professional (4.1%)
Relative (2.8%)
Children (2.2%)

Partner (18.1%)

Friends (1.6%)

Alone (64.4%)

WHERE THE DAY IS SPENT (in % of day)

Other (0.5%)
In transit (2.5%) Missing (1.3%)
Someone's apt. (2.5%)
Public spaces (3.7%)

Outdoors (7.2%)
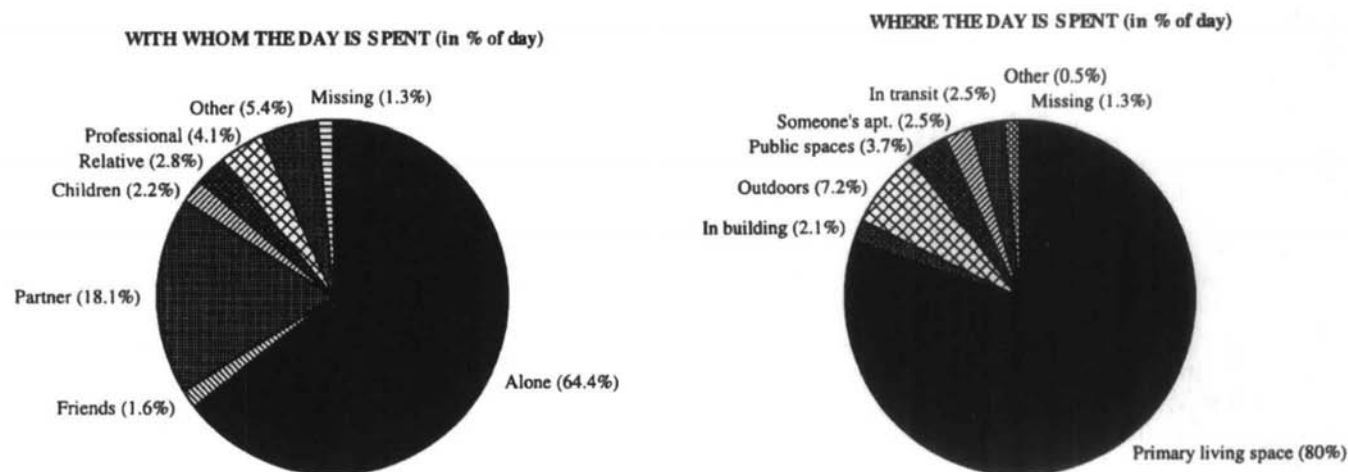
In building (2.1%)

Primary living space (80%)

Figure 2. The social and physical contexts in which activities occur.

Gender and marital status had significant bivariate relationships only for the frequency of IADL tasks and television watching. Women reported more instrumental activities and had fewer television watching periods; married people did fewer IADL tasks but watched television more often during the day [t values range from −4.0–4.3, p < .001].

Level of education and income had no significant relationship with the specific activity domains, but more education was associated with more frequent discretionary activities [$t(474) = -4.9$, $p < .001$; see Table 4).

Activity Duration.—With regard to time spent in activities, group differences based on sociodemographic characteristics were noted for basic personal maintenance, instrumental activities, other leisure activities, television watching, and resting (see Table 5). Significant effects of age were noted for four categories of activities: personal maintenance, instrumental, other leisure, and resting [all F values $(2,482) > 8.2$, $p < .001$]. Participants older than the age of 90 spent significantly more time doing basic personal maintenance tasks than did participants in their 70s and 80s.

In contrast, there were significant incremental differences between each age decade in the amount of time spent in instrumental and other leisure activities, which were lowest in the 90s and highest in the 70s, and in time spent in resting, which showed the reverse pattern.

Residential status showed a similar pattern of effects. Long-term care residents spent significantly less time doing IADLs, watching television, and doing other leisure activities, but more time resting. None of the long-term care residents were engaged in paid work. [all t values range from 3.4–11.0, $p < .001$].

Gender was significantly associated with instrumental activities and television watching. Women spent significantly more time doing IADLs [$t(463.7) = -5.7$, $p < .001$] and less time watching television [$t(483) = 3.3$, $p < .001$] than men.

With regard to marital status, the reverse pattern was noted. Married participants spent significantly more time watching television and less time doing IADL tasks and resting. There were no significant effects of education or income on the amount of time spent in activities [all t values range from −3.7 to 3.9, p < .001]

Table 4. Effect of Background Characteristics on the Mean Frequency of Activities

Activity Category	Age Decade				Gender			Married			Education			Long-Term Care			Income		
	70s	80s	90s+	p	Male	Female	p	No	Yes	p	Low	High	p	No	Yes	p	Low	High	p
Obligatory	17.1	15.9	13.6	*a	14.6	16.6	*	16.0	14.6		15.4	16.1		16.1	12.4	*	15.5	15.7	
Personal	7.8	7.8	8.0		7.8	8.0		7.8	8.0		7.9	7.8		7.8	8.3		7.9	7.9	
IADL	9.1	8.1	5.6	*a	6.7	8.6	*	8.1	6.5	*	7.5	8.1		8.1	4.1	*	7.6	7.7	
Discretionary	8.4	2.5	3.6	*a	7.5	6.9		6.9	7.9		6.8	8.4	*	7.6	4.4	*	7.0	7.5	
Watching TV	1.9	1.8	1.4	*a	1.9	1.5	*	1.6	2.0	*	1.7	1.8		1.8	.9	*	1.6	1.8	
Reading	1.8	1.8	1.3	*a	1.8	1.5		1.6	1.9		1.5	2.0		1.8	.9	*	1.6	1.7	
Other leisure	2.8	2.3	1.6	*a	2.2	2.3		2.2	2.4		2.1	2.7		2.4	1.4	*	2.1	2.5	
Paid work	0.2	0.1	0.0		0.1	0.0		0.1	0.1		0.0	0.2		1.0	0.0		0.0	1.1	
Socializing	1.9	1.6	1.4		1.5	1.7		1.6	1.7		1.5	2.0		1.7	1.3		1.7	1.6	
Resting	2.0	2.5	3.6	*a	2.5	2.8		2.9	2.2	*	2.8	2.4		2.4	5.0	*	2.8	2.6	

*$p < .001$.
a90+ age group differs significantly from the 70s and 80s age groups.

Table 5. Effect of Background Characteristics on the Mean Duration of Time Spent in Activities

Activity Category	Age Decade				Sex			Married			Education			Long-Term Care			Income		
	70s	80s	90s+	p	Male	Female	p	No	Yes	p	Low	High	p	No	Yes	p	Low	High	p
Obligatory	371.3	336.0	301.9	*b	310.5	366.3	*	348.1	314.5		333.7	362.7		351.3	240.0	*	326.9	350.0	
Personal	138.6	148.9	164.2	*a	151.8	148.4		148.6	153.6		151.3	141.3		148.2	165.6		148.5	152.0	
IADL	216.6	182.1	137.3	*b	148.5	213.5	*	192.5	152.6	*	179.3	188.3		193.8	74.3	*	175.3	185.5	
Discretionary	226.5	179.1	139.2	*b	184.0	192.0		176.2	198.0		171.0	207.9		459.1	285.0	*	433.9	445.0	
Watching TV	174.5	177.6	133.4		181.4	142.7	*	148.2	194.5	*	171.2	141.8		172.1	90.1	*	177.2	147.1	
Reading	100.4	101.7	76.5		100.9	85.3		88.6	103.7		88.1	104.6		98.0	57.5		88.7	98.2	
Other leisure	146.3	117.4	80.2	*b	116.9	114.6		114.0	119.7		108.3	131.4		121.5	72.1	*	107.0	125.3	
Paid work	16.1	5.0	0.4		10.2	4.4		7.0	8.3		4.1	15.1		8.4	0.0		5.3	9.7	
Socializing	80.1	61.6	59.0		67.1	67.4		62.1	78.3		62.7	76.4		53.2	65.4		67.9	66.4	
Resting	112.9	157.3	270.0	*b	170.7	184.2		194.3	139.9	*	189.2	146.0		150.3	383.6	*	183.7	170.0	

*p < .001.
a90+ age group differs significantly from the 70s and 80s age groups.
bAll three age groups differ significantly.

When the eight activity domains (excluding resting) were condensed into two main categories of activities—obligatory vs discretionary activities—a similar pattern emerged (see Table 5). Significant incremental age differences were found for the time spent in both categories of activities. Those older than 90 spent less time in both obligatory and discretionary activities than those in their 80s, who spent less time doing both types of activities than those in their 70s.

In addition, being female was associated with increased time doing obligatory activities. Long-term care residence was associated with less time spent in both obligatory and discretionary activity domains. There were no significant effects of income or education in the amount of time spent in either obligatory or discretionary activities.

Activity Variety.—When the variety or the number of different activities is examined, the pattern of results is similar to that noted for duration of activities. For ease of presentation, only results for the obligatory, discretionary, and resting domains will be described. With regard to age decades, participants in their 90s and older do significantly fewer different ob-

ligatory activities [F(2,482) = 26.3, p < .001] and discretionary activities [F(2,482) = 25.3, p < .001] than those in their 70s or 80s, but show more variety in resting activities. Specific activity differences are shown in Table 6. No significant effects of sex, income, or education on activity variety were noted. There was a significant effect of residential status in that those living in long-term care had significantly less variety in both obligatory [t(483) = 7.3, p < .001] and discretionary activities [t(483) = 7.7, p < .001] than community-dwelling elders.

Social Context.—In univariate analyses of group differences, the social interconnectedness of the elderly participants was dependent on sex, marital status, and residence (see Table 7). Women [t(468.1) = −8.1, p < .001] and unmarried elders [t(483) = 18.1, p < .001] spent significantly more time alone. Long-term care residents and women spent significantly less time with family. No significant influences of age, education, and social status were noted.

Physical Context.—No significant effects of sex, education, marital, residential, or social status were noted

Table 6. Effect of Background Characteristics on the Mean Variety of Activities

Activity Category	Age Decade				Sex			Married			Education			Long-Term Care			Income		
	70s	80s	90s+	p	Male	Female	p	No	Yes	p	Low	High	p	No	Yes	p	Low	High	p
Obligatory	7.6	7.2	6.2	*a	6.8	7.2		7.3	6.8		7.0	7.3		7.2	5.6	*	7.0	7.1	
Personal	3.9	4.0	3.9		3.9	3.9		3.9	3.9		3.9	3.9		3.9	3.8		4.0	3.9	
IADL	3.6	3.3	2.3	*a	2.9	3.3		3.2	2.8		3.0	3.3		3.3	1.8	*	3.0	3.2	
Discretionary	4.8	4.3	3.4	*a	4.2	4.2		4.1	4.4		4.0	4.7		4.4	2.6	*	4.1	4.3	
Watching TV	0.9	0.9	0.8		0.9	0.8		0.8	0.9	*	0.8	0.8		0.9	0.5	*	0.8	0.8	
Reading	0.8	0.8	0.6	*a	0.8	0.7		0.7	0.8	*	0.7	0.8		0.8	0.4	*	0.7	0.7	
Other leisure	1.9	1.6	1.2	*a	1.6	1.6		1.5	1.6		1.5	1.8		1.7	0.8	*	1.5	1.7	
Paid work	0.1	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.1		0.0	0.0		0.0	0.0	
Socializing	1.2	1.0	0.9		0.9	1.1		1.1	1.0		0.9	1.3	*	1.1	0.8		1.0	1.0	
Resting	1.2	1.4	1.6	*a	1.4	1.3		1.4	1.3		1.4	1.3		1.4	1.5		1.4	1.4	

*p < .001.
a90+ age group differs significantly from the 70s and 80s age groups.

Table 7. Effect of Background Characteristics on the Contexts of Activities

Activity Category	Age Decade				Sex			Married			Education			Long-Term Care			Income		
	70s	80s	90s+	p	Male	Female	p	No	Yes	p	Low	High	p	No	Yes	p	Low	High	p
Social Contexts																			
Time alone	581.6	652.5	644.8		522.7	735.0	*	758.1	335.2	*	639.0	591.8		612.3	727.4		612.6	640.6	
Time with family	273.2	199.0	186.9		330.3	104.6	*	89.3	509.3	*	215.1	246.3		241.3	64.9	*	227.8	212.9	
Time with others	71.1	66.6	44.2		45.2	78.0	*	76.4	27.6	*	55.1	72.7		59.7	72.1		56.8	66.2	
Physical Contexts																			
Time outdoors	253.7	181.2	100.9	*a	185.4	176.7		180.4	182.7		182.0	179.9		182.7	169.9		175.4	187.8	

*p < .001.
aAll three age groups differ significantly.

on the amount of time spent outdoors (see Table 7). The only significant effect was noted for age. Significantly less time was spent outdoors [$F(2,482) = 29.4$, $p < .001$] with each successive age decade.

Predicting Activity Frequency, Duration, Variety, and Context

Given the number of bivariate relationships between sociodemographic characteristics and different aspects of everyday activities, the question remains as to which factors are more important in predicting activities. Thus, a series of multiple regression analyses were conducted to address this question. In the first set of analyses, activity frequency in each of the eight domains, plus the summary categories of obligatory and discretionary activities, was regressed on age, sex, marital status, long-term care, education level, and income. Second, the same series of multiple regression models was conducted with activity duration as the dependent variable. Finally, in the third set of models, activity variety in the different activity categories was the dependent variable. The results of the multiple regression analyses are presented in Table 8. Again, given the number of comparisons being made, only predictors significant at the .001 level are reported.

With regard to *activity frequency*, significant regression models were noted for all categories of activities except basic personal maintenance, reading, and social domains. The most consistent predictors of the number of activities in all other domains were age and residential status. With increasing age, the frequency of doing IADLs, watching television, and doing other leisure activities decreased significantly while the frequency of resting activities increased. Residence in a long-term care facility showed the same pattern of results as age. In contrast, marital status, education level, and income had very little effect after controlling for all other demographic characteristics, and sex had no significant influence.

When the same set of personal characteristics was used to predict *activity duration*, age and residential status again emerged as significant predictors of time in most activity domains after controlling for the other

independent variables. Advanced age was associated with significantly less time spent in instrumental activities, other leisure activities, and paid work and with more time spent doing personal maintenance and resting. Long-term care residents spent significantly less time in instrumental activities and watching television, but more time resting. A higher level of income was associated with more time spent in paid work, holding all other variables constant. Finally, being female was associated with more time spent in instrumental activities, even after controlling for age, marital status, long-term care residence, and level of income and education.

When *activity variety* was examined, again age and long-term care residence were the strongest predictors, after controlling for all others in the regression models. In particular, living in a long-term care facility was associated with significantly less variety in the types of activities engaged in during the day.

In contrast, there were very few significant predictors of the amount of time spent in different social and physical contexts when all sociodemographic predictors were entered in the models (see bottom of Table 8). Only advanced age was significantly predictive of less time spent outdoors. Marital status was significantly associated with less time spent alone, after controlling for all other variables.

Discussion

The goal of this article was to explicate how elderly adults spend their days and what background characteristics influence their daily activities. To that end, a detailed profile of everyday life that describes the frequency, duration, variety, and social and physical contexts of activities and their association with personal characteristics such as age, sex, marital status, gender, education, income, and residential status has been presented here. The description of the type, location, and social context of activities engaged in by elderly adults, as well as the influence of background variables on that engagement, presents a first glimpse into the everyday "competence" of elders over the age of 70.

Table 8. Background Characteristics Regressed on Frequency, Variety, and Duration of Activities

Dependent Variables	Model R²	Predictors[a]					
		Age	Sex[b]	Marital Status[c]	Long-Term Care[d]	Education Level	Income Level
Activity Frequency							
Obligatory	.14	−.25	—	—	−.16	—	
Personal	.01	—	—	—	—	—	—
IADL	.18	−.28	—	−.17	−.20	—	—
Discretionary	.20	−.26	—	—	−.21	.19	—
Watching TV	.11	−.16	—	—	−.17	—	—
Reading	.08	—	—	—	−.16	—	—
Other leisure	.10	−.20	—	—	—	—	—
Paid work	.10	—	—	—	—	—	.29
Socializing	.04	—	—	—	—	—	—
Resting	.22	.22	—	—	.32	—	—
Activity Duration							
Obligatory	.16	−.16	.21	—	−.21	—	.21
Personal	.05	.20	—	—	—	—	—
IADL	.21	−.21	.23	—	−.26	—	—
Discretionary	.20	−.27	—	—	−.22	—	—
Watching TV	.09	—	—	—	—	—	—
Reading	.04	—	—	—	−.16	—	—
Other leisure	.07	−.20	—	—	—	—	—
Paid work	.11	−.16	—	—	—	—	.30
Socializing	.02	—	—	—	—	—	—
Resting	.30	.28	—	—	.36	—	—
Activity Variety							
Obligatory	.18	−.29	—	—	−.22	—	—
Personal	.03	—	—	—	—	—	—
IADL	.17	−.28	—	—	−.20	—	—
Discretionary	.19	−.24	—	—	−.24	.15	—
Watching TV	.13	—	—	—	−.29	—	—
Reading	.11	—	—	—	−.19	—	—
Other leisure	.11	−.17	—	—	−.17	—	—
Paid work	.13	—	—	—	—	—	.33
Socializing	.06	—	—	—	—	—	—
Resting	.07	.23	—	—	—	—	—
Activity Context							
Time alone	.41	—	—	−.60	—	—	—
Time outdoors	.13	−.36	—	—	—	—	—

[a]Standardized regression coefficients of significant predictors; $p < .001$.
[b]Coded 0 = male, 1 = female.
[c]Coded 0 = single, 1 = married.
[d]Coded 0 = no, 1 = yes.

How do older adults spend their day? Basically, time is spent in one of three activity categories: obligatory activities (personal self-maintenance and IADLs), leisure (television viewing, reading, or other activities), or resting. The relative distribution of these activities across the day depends on what dimension of the activity one is describing: frequency, duration, or variety. Obligatory activities such as personal self-maintenance and instrumental activities occur most frequently and had the highest variety during the day, yet do not occupy the most time. Instead, the day is temporally dominated by leisure activities, especially watching television. On average, about half of the average number of 16 waking hours in the day were spent in pursuit of leisure activities. In terms of variety

of activities, however, leisure was restricted mostly to television viewing and reading. About one third of the day was spent doing 16 obligatory activities that participants, on average, reported. Finally, resting occupied a significant portion of the day (about 3 hours, representing 19% of the waking hours). The vast majority of the day was spent alone and at home.

What factors influence how elders spend their time? By and large, age has the most consistent bivariate effect on activity frequency, duration, and variety. Across all activity categories, elders older than the age of 90 show significantly less activity engagement than their younger peers. The only exception to this finding is in terms of resting; the oldest-old spend significantly more time resting than younger elders do. This

finding likely reflects increasing frailty in advanced old age.

Gender and marital status had relatively few significant effects on how elderly people spend their day. Women and unmarried persons reported spending more time engaged in IADL tasks (e.g., doing housework, running errands, and using transportation) and less time watching television than others. Because marital status and gender are strongly related in late life, this finding applies to widowed women and reflects patterns of gender-role socialization. Further, elderly women and unmarried persons spend significantly more time alone and at home. As such, gender and marital status influence the social and physical contexts of activities. Somewhat surprisingly, education showed few effects on activities and income level had no significant effect at the bivariate level.

Residential status also exerted a significant influence on how participants spend their days in terms of frequency, duration, and variety of activities. Participants residing in long-term care housing did fewer IADL tasks and watched less television, and they read and did other leisure activities less often and for shorter times during the day. In addition, long-term care residents rested longer and more often than their community-dwelling peers. There are several explanations for this finding. First, restricted leisure activity participation may reflect the high level of impairment and frailty among those who do not, and most likely are unable, to live independently. Discretionary activities are usually the first ones to be selected out when impairments strike (B. Baltes & M. Baltes, 1990). In one sense, they are the easiest to drop from one's behavioral repertoire because they do not ensure one's survival and are less likely to endanger one's status of autonomy and independence. Second, long-term care facilities represent a restricted opportunity structure (M. Baltes & Horgas, 1997). For example, it would be expected that long-term care residents do fewer IADL tasks like shopping and cleaning because, in many cases, people moved into these living arrangements because they did not want, or were unable, to do these activities. In this regard, the long-term care facility provides a compensatory environment. In other analyses, M. Baltes and Horgas (1997) found that elderly long-term care residents spent the same amount of time doing basic self-care activities as community-dwelling elders, but did fewer different basic activities during that time, thus lending further support to the compensation hypothesis. Third, residential status is undoubtedly confounded with age. Post hoc analyses indicated that age and residential status were significantly related. Of participants residing in long-term care housing, 66% were 90 years of age or older compared with 25% of those participants in their 80s and 25% of those in their 70s.

Given the pattern of bivariate relationships between the personal background variables and the different activity dimensions and categories, the question remains as to which factors were the strongest predictors of the activity variables. Across the multiple regression analyses, age and residential status showed the strongest and most consistent associations with activities,

representing the restriction of both internal and external resources. Age as an internal resource reflects the underlying health or cognitive status of elders. It should be noted that very old chronological age seems to make a unique contribution to the level of disability and activity when disease and functional limitations are controlled for (Steinhagen-Thiessen & Borchelt, 1996). Residential status reflects external resources in that opportunities to exhibit some types of behaviors are, on average, fewer in institutions than in the community.

In general, age and long-term care residence appear to be the most influential barriers to how older adults conduct daily life. Whereas advanced age, as a proxy for health and cognition, represents a selection mechanism for activity engagement, long-term care may be both a selection and a compensation mechanism for prior physical decline and inability to perform activities (see also M. Baltes, Wahl, & Reichert, 1991). The differential patterns of age-related and residence-related activity differences across discretionary and obligatory activity domains are consistent with the model of selective optimization with compensation (P. Baltes & M. Baltes, 1990). That is, as people experience age-related decline, they restrict the domains of activities in which to concentrate their energy and efforts, thereby maintaining and perhaps even optimizing performance in these activities. Leisure activities, for instance, are not associated with physical survival or independent living, so elders who are experiencing functional difficulties may choose to drop some of these activities from their daily routines. From the perspective of successful aging, this is viewed as a mechanism for adaptation in late life.

Alternatively, these results may reflect the nature of the long-term care environment. Low levels of activity engagement may be a consequence of the relative paucity of opportunities for enriching activities, or at least activities that are congruent with elders' preferences and abilities. In these data, we find that institutionalized elders engage in less activity, be it instrumental or leisure in nature. Instead, they rested more frequently during the day. However, if one uses a typicality variable as an indicator of a "special" day—one that is characterized by more time outdoors, spent with others, and engaged in leisure activities—community-dwelling elders were no more likely to report such a day than those residing in long-term care facilities. Thus, although many nursing homes and sheltered care facilities undoubtedly provide limited opportunities for discretionary and IADL activities, a restricted activity level appears to be more the cause than the consequence of institutionalization in these data. That is, for those older than the age of 90, the external environment may make less of a difference in whether a behavior occurs than intraindividual factors. Longitudinal data would be required, however, to test this assertion.

Perhaps the more interesting finding from these data is the substantial variety in how elders spent their time. For instance, very few participants reported doing paid work (mean < 1 hr).Yet at least one participant stated that he or she spent about 9.5 hours

doing paid work. In contrast, IADL activities, such as household chores and doing errands, averaged about 3 hours with a standard deviation of about 2 hours. Again, at least one person reported spending about 9.5 hours doing these tasks whereas others reported spending no time on these activities. These findings support the heterogeneity of aging that reflects life-long activity patterns as well as gender roles and personal preferences. The amount of time spent doing diverse activities provides some insight into individual goals and motivations, needs and desires, and successful aging. Spending the bulk of one's day resting, for instance, would generally indicate a person who is aging less well than an individual who engages in a variety of activities, some obligatory and some discretionary, during the day.

Although these findings are specific to elderly Germans, there is some evidence to suggest their generalizability to North American elders. The literature that would provide contrasting or supporting data about elders' activities is sparse at best. The most direct comparison would be the study conducted by Moss and Lawton (1982) that used the same instrument to assess activities in a younger sample. Those data were remarkably similar to the results reported in this article. In both the German and the American descriptions of daily life, the majority of the day was spent alone and at home (or in the primary living space). Among leisure activities, television viewing predominates in both cultures (Fouts, 1989; Moss & Lawton, 1982), but German elders spent about 1 hour less watching TV and 1 hour more outdoors than did American elders, even though the German sample was an average of 10 years older (mean = 85 years) than the American sample (mean = 76 years). This may reflect cultural differences in urban planning and housing designs that emphasize outside spaces such as parks and gardens. The influence of American long-term care institutions on elders' activities is consistent with the findings reported here (Moss & Lawton, 1982; Resnick, Fries, & Verbrugge, 1997). Gender differences, especially in the IADL domain, are more likely to reflect cohort effects than culture and would be relatively consistent across these two Western cultures. As such, cultural influences are more likely to exert their effects at the individual level and would be attenuated in the average profiles presented here.

The limitations of this study should be noted. First, the data reported here are cross-sectional and do not provide information about the intraindividual stability or change in activities. In addition, these data cannot address the temporal ordering of influences; that is, the question of whether the long-term care environment constrains activities or restricted activities lead to institutionalization cannot be answered. Longitudinal change in activity profiles will be addressed in the BASE follow-up study that is currently in progress. Further, the results reported here focus only on descriptive analyses of activities and demographic and contextual influences on activity profiles. Our future work will also examine the influences of health and cognitive status indicators on elders' activities.

Understanding how elderly adults spend their days

provides a glimpse into the everyday world of one of the fastest growing segments of the population. As such, insight into similarities and differences in activity patterns, as well as the vast heterogeneity in how a day is spent, supports a multidimensional and individualized view of aging. In addition, these findings provide some insight into how personal resources, such as living independently, being younger, and having a marriage partner, shape not only how we spend our days, but also where and with whom we spend them. Recognition of these factors may help to draw attention to the need for compensatory mechanisms to support successful aging in face of the loss of social resources often associated with aging.

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