

Original Article

Activity Engagement and Activity-Related Experiences: The Role of Personality

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Abstract

Objectives: The associations of personality with activity participation and well-being have been well studied. However, less is known concerning the relationship between personality and specific aspects of activity engagement in older adults. We conducted a fine-grained examination of the effects of extraversion and conscientiousness on reported activity engagement—which we define as participation, time allocated, and affective experience—during 8 everyday activities.

Method: Data were obtained using a day reconstruction measure from a subgroup of participants in the 2012 Health and Retirement Study (HRS: $N = 5,484$; mean age = 67.98 years).

Results: We found mixed support for hypotheses suggesting that specific personality traits would be associated with activity participation, time allocated, and activity-affective experience. For example, extraverts were more likely to socialize and experienced higher socializing-related positive affect, but did not spend more time socializing.

Discussion: Results are discussed in light of the value of including personality in, and its contribution to, studies of activity engagement in later life. In addition, the need to acknowledge the complexity of the concept of activity engagement in future research is highlighted.

Keywords: Activity engagement—Day reconstruction measure—Extraversion and conscientiousness—Health and Retirement Study—Older adults

On a daily basis, older adults routinely fill the hours with multiple activities. However, relatively little is known about personality's role in the time allocated to specific everyday activities and affective experiences during these activities. Personality processes contribute to rank-order stability in trait-congruent preferences for activities and affective reactions at least to age 70 (Caspi, Roberts, & Shiner, 2005; Lucas & Donnellan, 2011). Mean levels of both personality traits and activities, however, change in later life due to differential exposure to social loss, illness, and functional limitations; for example, impaired mobility is associated with lower levels of all forms of social engagement (Rosso, Taylor, Tabb, & Michael, 2013) and differential

personality change is associated with chronic illness and functional limitations (Jokela, Hakulinen, Singh-Manoux, & Kivimäki, 2014; Stephan, Sutin & Terracciano, 2014; Wagner, Ram, Smith & Gerstorf, 2015).

In the social gerontology literature, proposals concerning the mechanisms that underlie the patterns of activities in later life are frequently derived from Activity Theory (e.g., Havighurst, 1948, 1961; Lemon, Bengtson, & Peterson, 1972). Beyond obligatory activities (e.g., personal care), this theory suggests that the patterns of formal (e.g., volunteering) and informal social activities (e.g., with family and friends) and solitary activities (e.g., watching television; Lemon et al., 1972) reported by older individuals reflect

adaptations to late-life social role changes, and efforts to maintain identity and agency. Furthermore, Activity Theory suggests that positive affect is associated with reporting more activities, especially informal social activities with intimate partners and friends. This proposal is also central to theories of successful aging (e.g., Havighurst, 1961; Rowe & Kahn, 1997).

Much social gerontological research has supported the important association between positive affect and engaging in different types of activities (e.g., social, productive, civic, religious, leisure, cognitive, and physical; e.g., Menec, 2003; Nimrod & Shrira, 2016; Pushkar et al., 2010). However, this research generally uses broad measures capturing the frequency of engaging in different types of activities in a week or month and rarely considers the role of personality (see however, Stephan, Boiché, Canada, & Terracciano, 2014). In an effort to address these gaps, we examine the associations between two personality traits (extraversion and conscientiousness) and engagement in specific activities in a day. Furthermore, we define *engagement* as (a) participation in an activity; (b) time spent in that activity; and (c) the positive and negative affective experience during that activity. To date, the concept of engagement has generally referenced behavioral indicators such as frequency of participation. We also add an experiential emotional component to this concept.

Personality and Activity Engagement

From the outset, Havighurst (1968) and colleagues (Neugarten, 1972; Neugarten, Havighurst, & Tobin, 1968) reported that individual differences in personality contributed to findings inconsistent with the general postulates of Activity Theory. In the Kansas City Study of Adult Life, these researchers distinguished two personality types that were associated with positive affect regardless of the number and types of activity engagement. Whereas some people, characterized as integrated personality types (Neugarten et al., 1968, pp. 174–175), engaged in a wide range of activities (the reorganizer subgroup), others with this personality profile (the focused subgroup) selectively derived happiness from a limited number of informal social activities. Neugarten and colleagues (1968) also identified a group characterized as the defended/armored personality type who were happy and content if they reported that their time was focused on solitary activities that supported their personal achievement needs.

From the contemporary personality literature, we selected two broad traits, extraversion and conscientiousness, that are associated with differential exposure to, and preferences for, social and achievement-oriented activities. These traits are also linked to specific affective reactions and behaviors (i.e., person–environment fit or congruence: Caspi et al., 2005; Diener & Lucas, 1999; Ickes, Snyder, & Garcia, 1997). After peaking in early midlife, mean levels of extraversion and conscientiousness generally decline

over time, but rank-order trait-related activity preferences remain stable (Roberts, Walton, & Viechtbauer, 2006).

Extraversion—which includes subfacets such as gregariousness, activity, excitement seeking, and positive emotion—has been linked to frequency of socializing and social leisure (Jopp & Hertzog, 2010; Stephan et al., 2014). Conscientiousness—a trait characterized by self-discipline, dutifulness, and achievement striving—is associated with preventative health-related behaviors (Takahashi, Edmonds, Jackson, & Roberts, 2013), volunteering in retirement (Mike, Jackson, & Oltmanns, 2014), and cognitive and educational activities, such as playing card games, doing puzzles, reading, writing letters, using a computer, and attending lectures (e.g., Jopp & Hertzog, 2010; Stephan et al., 2014). Mike and colleagues (2014) suggest that highly conscientious individuals may be more likely to do meaningful volunteer work to fill their time, satisfy achievement needs, and ease the transition into retirement.

Consistent with the extension of Activity Theory proposed by Havighurst (1968), both extraversion and conscientiousness are associated with global reports of high positive affect and low negative affect and successful aging. Extraversion predicts more frequent experiences of positive affect in social interactions and higher reactivity to positive social events (e.g., DeNeve & Cooper, 1998; Watson & Clark, 1992). Conscientiousness has been linked to higher positive affect and lower negative affect through goal-directed, achievement behavior (DeNeve & Cooper, 1998) and to multiple indicators of successful aging (e.g., Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007).

The Present Study

This article is guided by postulates from Activity Theory concerning individual differences and activity engagement (e.g., Havighurst, 1968; Lemon et al., 1972; Neugarten, 1972; Neugarten et al., 1968) and proposals from personality trait theories that activity preferences and related experiences reflect trait-specific congruence (Caspi et al., 2005; Ickes et al., 1997). We use data from the 2012 wave of the Health and Retirement Study (HRS), a representative panel of the U.S. population older than 50 years, to examine associations between extraversion and conscientiousness and everyday activity engagement: participation, time allocated, and activity-related affective experience. In 2012, HRS included a short self-administered day reconstruction measure that targets eight everyday activities: watching TV, work/volunteering, exercise, health-related activities, travel/commuting, socializing, spending time alone, and running errands. These activities are targeted because of their known frequency in the daily lives of older adults and relevance to global well-being measures (Smith, Ryan, Queen, Becker, & Gonzalez, 2014).

The day reconstruction measure allows a fine-grained investigation of personality-based associations of engagement in specific activities. Based on the Day

Reconstruction Method (DRM) developed by Kahneman, Krueger, Schkade, Schwarz, and Stone (2004; National Research Council, 2013, p. 60), the HRS day reconstruction measure provides information about activity engagement that is close to real time. Responses are less prone to memory biases than is the case with global estimations of frequency of activity participation and positive and negative affect over longer time periods (National Research Council, 2013). Most studies concerning the associations between personality traits and activities have utilized global counts or frequency ratings of participation and affect (e.g., Stephan et al., 2014), or aggregated daily diary or Experience Sampling Method reports. In addition, few studies with older adults have examined the role of personality in responses to variations of the DRM (exceptions include Oerlemans, Bakker, & Veenhoven, 2011; Parisi, 2010). Oerlemans and colleagues (2011) used a web adaptation of the DRM to examine the relationship between extraversion, activities (social, physical, restful, household, and cognitive), and happiness in retired seniors ($N = 438$; mean age = 65 years) in the Netherlands. Consistent with proposals about trait-specific congruence, they found that extraverted older adults experienced greater happiness when engaged in social activities.

Based on the literature, we expect that older adults will be more engaged (i.e., more likely to participate, spend more time, and report higher activity-related positive or negative affective experiences) in activities congruent with their personality traits. In particular, after controlling for confounds, we hypothesize that

- (a) Individuals higher in extraversion will be more engaged in socializing and less likely to report spending time at home alone;
- (b) Highly conscientious people will be more engaged in exercise, health-related behaviors, and working or volunteering.

Although we explore relationships between the personality traits and engagement in watching TV, traveling or commuting, and running errands, we make no predictions for these specific activities due to a current dearth of theoretical and empirical research.

In all analyses, we control for the main effects of sociodemographic and health-related factors known to be related to participation in activities and affective experience in later life. Activity participation, for example, is associated with marital status, work status, age, education, socioeconomic status, physical health, functional limitations, and depressive symptoms (e.g., Jopp & Hertzog, 2010; Menec, 2003; Parisi, 2010). Measures of trait positive affect, trait negative affect, and depression are associated with general affective mood and activity participation (e.g., Watson, 1988). In addition, based on the extensive time use literature about normative societal structure of activities, we include the type of day on

which activity occurred: weekday or weekend (National Research Council, 2013).

Method

We use data from participants in the random 50% subsample of the longitudinal HRS panel who were assigned to an in-person interview in the 2012 wave. Details of the HRS longitudinal panel design, sampling, and all questionnaires are available on the HRS website (<http://hrsonline.isr.umich.edu>; see also Sonnega, Faul, Ofstedal, Langa, Phillips, & Weir, 2014). Approximately 120 trained and certified interviewers located in the contiguous United States conducted the in-person computer-assisted interviews between April 2012 and April 2013. Each interview took, on average, 2 hours. The covariates included in the present study that are derived from this interview are functional limitations, depressive symptoms, work status, and marital status. At the end of this interview, participants received a paper self-administered psychosocial questionnaire to complete in their own time and return by mail (for details see Smith et al., 2014). Participants were compensated for the interview and for returning the self-administered questionnaire (SAQ). In 2012, the SAQ included the day reconstruction, personality, and trait positive and negative affect measures described in the following sections.

Participants

Of the 7,306 people who returned the 2012 SAQ, the potential sample for the present study was reduced to 6,268 age-eligible and nonproxy informants. An additional 784 respondents did not have complete data for one or more covariates (0.8% of the sample had missing data for gender; race, 1.6%; education, 2.1%; depressive symptoms, 2.1%; type of day, 1.7%; trait negative affect, 1.6%; trait positive affect, 1.6%; there were no missing data for age, marital status, work status, and functional limitations). The final analytic sample with complete data consisted of 5,484 individuals. Sensitivity analyses were conducted for differences between those with complete or incomplete data on age, gender, marital status, and functional limitations. Although marital status and gender did not affect whether data were complete or not, older adults and those with functional limitations were less likely to have provided complete data, odds ratio [OR] = 0.97; 95% confidence interval [CI]: 0.96, 0.98, $p < .001$, and OR = 0.95; 95% CI: 0.93, 0.96, $p < .001$, respectively.

Participants' ages ranged from 51 to 99 years ($M = 67.98$); of these, approximately 27% were in their 50s ($M = 55.63$), 27% were in their 60s ($M = 64.13$), 31% were in their 70s ($M = 74.13$), and 15% were aged 80+ ($M = 84.21$). Of the sample, 78.8% were White, 58.5% were women, and 35.4% were working for pay. Mean number of years of education was 12.9, and the majority of participants were married (60.3%).

Measures

Activity engagement

We computed three indicators of activity engagement (participation, time allocation, and activity-related affect) from the day reconstruction measure included in the 2012 HRS psychosocial SAQ (pp. 29–39; available online at http://hrsonline.isr.umich.edu/modules/meta/2012/core/qnaire/online/HRS2012_SAQ_Final.pdf; see also Smith et al., 2014). Previous research with a select sample of older adults found that a brief yesterday measure somewhat like the HRS measure produced time and affect estimates comparable with the full DRM (Christodoulou, Schneider, & Stone, 2014). The HRS short day reconstruction measure begins with the following instruction: “Please think now about things you did yesterday. How did you spend your time and how did you feel?” The measure targets engagement in eight activities: watching TV; work or volunteering; walking or exercising; health-related activities (such as doctor visits, taking medication, or doing treatments); traveling or commuting (e.g., by car, train, bus); socializing with friends, neighbors, or family (not counting your spouse or partner); spending time at home by yourself (without your spouse, partner, or anyone else present); and running errands (e.g., go shopping, get gas or supplies, pick up or deliver something). These activities are consistently found in the American Time Use Studies to be frequent daily activities in the lives of adults older than 50 years (Krantz-Kent & Stewart, 2007).

Participation

For each activity, participants were asked if they participated in the activity during the previous day (coded 1 = *yes*, 0 = *no*). We also created an indicator of overall activity participation by summing the total number of activities reported by each participant ($M = 3.41$; $SD = 1.49$).

Time allocation

For each activity, participants were asked to estimate the total time (hours, minutes) spent on the activity (coded in minutes). The HRS measure also asked participants to report the time they woke up yesterday and time they went to sleep the day before. Responses to these questions provided an estimate of total waking time (minutes) in the day ($M = 969.18$ minutes; $SD = 113.77$ minutes).

Activity-related affective experience

After questions about participation and time for each activity, participants were asked to rate the intensity of three positive (happy, interested, and content) and three negative (frustrated, sad, and bored) affective experiences on a scale from 0 (*did not experience the feeling at all*) to 6 (*feeling was extremely strong*). We first calculated individual-level means on the 0 to 6 rating scale for positive and negative affect for each activity that the person reported. In the current study, the three-item positive affect measure exhibited inter-item consistencies ranging from $\alpha = .82$ to

$\alpha = .90$ across activities, and the three-item negative affect inter-item consistencies ranged from $\alpha = .65$ to $\alpha = .81$. Additionally, we averaged these activity-related positive and negative experiences across all the activities that each individual reported to provide aggregated indicators of affect experienced during the previous day's activities (overall activity-related positive affect $M = 3.51$; $SD = 1.40$; overall activity-related negative affect $M = 0.65$; $SD = 0.90$).

Personality

We measured conscientiousness and extraversion using the Midlife Development Inventory (Lachman & Weaver, 1997). Participants were asked to indicate how well a series of adjectives described them on a 4-point scale from 1 (*a lot*) to 4 (*not at all*). Scores for conscientiousness ($M = 3.26$; $SD = 0.41$) and extraversion ($M = 3.17$; $SD = 0.57$) each comprised the mean of five items; responses were reverse scored where appropriate and inter-item consistencies were within acceptable ranges (conscientiousness $\alpha = .72$; extraversion $\alpha = .74$). Conscientiousness and extraversion are often moderately correlated, as was the case in the current study: $r = .33$, $p < .001$.

Covariates and moderators

We controlled for the main effects of several confounding sociodemographic factors: gender (1 = *women*; 0 = *men*), race (1 = *White*; 0 = *Black*), age (continuous), years of education (continuous), work status (1 = *working*; 0 = *retired*), and marital status (1 = *married*; 0 = *not married*). Number of depressive symptoms was also continuous and assessed using the 8-item HRS adaptation of the CES-D (Steffick, 2000). Responses to items such as loss of interest and feeling tired were coded 1 = *yes* or 0 = *no* and summed to create a total score, maximum = 8. Functional limitations were assessed using items adapted from scales developed by Rosow and Breslau (1966), Nagi (1976), Katz, Ford, Moskowitz, Jackson, and Jaffe (1963), and Lawton and Brody (1969). Participants were asked if they had difficulty doing activities ranging from running or jogging a mile, walking one block, and climbing one flight of stairs to picking up a dime, shopping for groceries, dressing, and bathing. Responses were coded as 1 = *yes* or 0 = *no* and summed ($M = 4.22$; $SD = 4.04$). Higher scores indicated more physical limitations; maximum score = 23.

In addition to the demographic and health covariates, we controlled for trait positive and negative affect, and the particular day of the week that each participant referenced as “yesterday.” These covariates were obtained in the 2012 SAQ. To assess trait positive affect and trait negative affect, participants completed the Positive and Negative Affect Schedule (PANAS-X; Watson & Clark 1999), which asked participants how much they had experienced 13 positive and 12 negative emotions during the past 30 days, rating them from 1 (*not at all*) to 5 (*very much*). Both mean trait positive affect ($M = 3.55$; $SD = 0.80$) and mean trait negative affect ($M = 1.76$; $SD = 0.64$) were reliable: $\alpha = .93$

and $\alpha = .90$, respectively. Type of day was asked in the day reconstruction measure and coded as 0 = *weekday*; 1 = *weekend* (25.8% reported a weekend).

Analysis Plan

Initial descriptive information was calculated for each activity regarding the three indicators of engagement (participation frequency, time allocation, and affective experience). Using the full analytic sample, we then conducted separate binomial logistic regressions to examine the contribution of extraversion and conscientiousness to the likelihood of participation in each activity. For each activity, subsequent linear regressions were conducted to investigate associations between these personality traits, time allocated to the activity, and activity-related positive and negative affective experiences. Sample sizes varied for these analyses, depending upon reported rates of activity participation. Separate analyses were conducted to examine the potential impact of skewed distributions (transformations chosen based on achieving symmetric distributions and appropriate QQ plots on the time allocation variables) and to rule out selection effects on the time allocation variables due to not participating in the activity. For the latter, we used the standard Heckman selection model (1976), using a binomial regression to model activity engagement and a simultaneous linear regression on the time allocation variable. The conclusions reported in this article are generally robust to transformations that address skewness in the time allocation variable and robust to analyses that adjust for activity selection effects (we note the few exceptions in the results section).

All regressions controlled for the main effects of the covariates outlined earlier: gender, race, age, education, work status, marital status, type of day, depressive symptoms, and functional limitations, together with trait negative affect and trait positive affect. The amount of time spent in the activity was also controlled for in the regressions testing the personality/activity-related affect relationship. In order to avoid Type 1 errors, Bonferroni corrections were applied (both within a regression when interpreting the covariates and across regression when focusing on specific extraversion and conscientiousness coefficients). Although not reported in this article—but available upon request from the first author—we also ran additional models for each analysis that included (a) both extraversion and conscientiousness, (b) all of the Big Five personality traits, and (c) multiple imputation models on the binomial logistic regressions of activity participation to address the roughly 13% of age-eligible participants who had missing data on one or more covariates. Across these three analyses, we found little change in results compared with the current analyses.

The sample size ($N = 5,484$) provides adequate power to detect small effect sizes, even considering the Bonferroni correction, at least for analyses involving the activity engagement variables, which are based on the full sample. Power analysis becomes more complicated for the time

allocation and affect variables because they depend on whether or not the respondent engaged in the activity. The standard regression activity-specific analyses that ignore this selection effect are still based on at least $n = 1,318$ participants providing adequate power to detect small effects even when accounting for the Bonferroni correction.

Results

In the following sections, we report findings separately for the associations between activity participation, time allocation, and activity-related affect, and the personality traits extraversion and conscientiousness ([Supplementary Table 1](#) provides descriptive information).

Personality and Activity Participation

[Tables 1](#) and [2](#) present the results of binomial logistic regressions testing the likelihood of participating in each of the activities by extraversion and conscientiousness, respectively, with and without covariates. The expected congruence between specific personality trait and activity participation was evident with extraversion, but a nonhypothesized significant association was revealed for conscientiousness. After controlling for the covariates listed earlier, higher extraversion was associated with higher likelihood to socialize, $OR = 1.41$; 95% CI: 1.26, 1.58, $p < .001$, and less likelihood to spend time alone, $OR = 0.84$; 95% CI: 0.74, 0.94, $p < .05$. Additionally, extraversion was related to higher likelihood of exercising, $OR = 1.19$; 95% CI: 1.06, 1.34, $p < .05$. Contrary to our hypotheses, conscientiousness was not associated with participation in exercise, health-related activities, or work and volunteering ([Table 2](#)). Instead, higher conscientiousness was associated with higher likelihood of spending time alone, $OR = 1.28$; 95% CI: 1.09, 1.49, $p < .05$. Follow-up analyses were conducted to ascertain the relationship between personality and the number of activities in which participants engaged. These analyses revealed that, over and above all covariates, older adults high in extraversion (but not conscientiousness) participated in more activities in a day, $\beta = 0.05$, $p < .05$.

Some covariates also demonstrated associations with increased or decreased likelihood of participation in activities, in ways expected from the literature. For example, on weekends people were less likely to work/volunteer, exercise, do health-related activities, travel/commute, spend time alone, or run errands. People with more functional limitations were less likely to work/volunteer, exercise, travel/commute, or run errands, but they were more likely to do health-related activities.

Personality and Time Allocated to Each Activity

Sample sizes for these analyses differed depending on how many participants actually spent time in each activity: watching TV ($n = 5,386$), work/volunteer ($n = 1,318$),

Table 1. Contribution of Extraversion and Covariates to the Likelihood of Engaging in Each Activity for Total Sample (odds ratios)

	Activity							
	TV	Work/Vol	Exercise	Health	Travel	Socialize	Alone	Errands
Covariates								
Gender	1.11	0.98	0.73***	1.14	1.12	1.25**	1.01	1.02
Race	0.67	1.27	1.07	1.14	1.14	1.09	1.55***	1.04
Age	0.96*	0.99*	1.00	1.00	0.99*	0.99	0.99**	0.99*
Years of education	1.06	1.04*	1.02	1.11***	1.04**	1.02	1.08***	1.04**
Work status	1.08	5.37***	0.87	0.88	1.88***	0.92	0.99	0.95
Marital status	0.88	0.99	0.88	1.02	1.03	0.81*	0.24***	1.09
Number of depressive symptoms	0.94	0.99	0.96	1.03	0.99	0.95*	1.03	1.00
Number of functional limitations	0.98	0.93***	0.95***	1.05***	0.96***	1.01	0.98	0.94***
Type of day	1.13	0.39***	0.80**	0.67***	0.75***	1.15	0.76***	0.77***
Trait negative affect	1.07	1.11	1.16	1.06	1.05	1.01	1.02	1.07
Trait positive affect	1.06	1.27**	1.28***	1.16*	1.15	1.14	1.13	1.10
Extraversion	0.91	0.92	1.19*	0.93	1.11	1.41***	0.84*	1.10
Odds ratios without covariates	1.09	1.32***	1.48***	0.96	1.38***	1.62***	0.89	1.28***

Notes: N = 5,484.

Referents: Gender: 0 = men; Race: 1 = White; Work status: 1 = working; Marital status: 1 = married; Type of day: 0 = weekday. All other variables are continuous. Maximum for each continuous covariate: 99 (age); 17 (years of education); 8 (number of depressive symptoms); 23 (number of functional limitations); 6 (both positive affect and negative affect).

*p < .05. **p < .01. ***p < .001. Bonferroni correction applied.

Table 2. Contribution of Conscientiousness and Covariates to the Likelihood of Engaging in Each Activity for Total Sample (odds ratios)

	Activity							
	TV	Work/Vol	Exercise	Health	Travel	Socialize	Alone	Errands
Covariates								
Gender	1.13	0.97	0.74***	1.12	1.14	1.28***	0.97	1.02
Race	0.67	1.27	1.06	1.14	1.13	1.08	1.55***	1.04
Age	0.96*	0.99*	1.00	1.00	0.99*	1.00	0.99**	0.99*
Years of education	1.06	1.04**	1.02	1.11***	1.04**	1.02	1.08***	1.04**
Work status	1.08	5.37***	0.87	0.88	1.88***	0.92	0.98	0.96
Marital status	0.88	0.99	0.88	1.02	1.03	0.81*	0.24***	1.08
Number of depressive symptoms	0.94	0.99	0.96	1.03	0.99	0.95*	1.03	1.00
Number of functional limitations	0.98	0.93***	0.94***	1.05***	0.95***	1.00	0.99	0.94***
Type of day	1.25	0.39***	0.80**	0.67***	0.75***	1.15	0.76***	0.77***
Trait negative affect	1.05	1.10	1.17	1.07	1.04	1.02	1.03	1.08
Trait positive affect	1.06	1.23**	1.35***	1.11	1.21***	1.28***	1.02	1.13
Conscientiousness	0.84	1.01	1.06	1.13	0.92	1.02	1.28*	1.03
Odds ratios without covariates	1.06	1.49***	1.39***	1.15	1.30***	1.38***	1.23*	1.29**

Notes: N = 5,484.

Referents: Gender: 0 = men; Race: 1 = White; Work status: 1 = working; Marital status: 1 = married; Type of day: 0 = weekday. All other variables are continuous. Maximum for each continuous covariate: 99 (age); 17 (years of education); 8 (number of depressive symptoms); 23 (number of functional limitations); 6 (both positive affect and negative affect).

*p < .05. **p < .01. ***p < .001. Bonferroni correction applied.

exercise (n = 2,418), health-related activities (n = 1,730), travel/commute (n = 2,776), socializing (n = 2,933), time alone (n = 2,233), and running errands (n = 2,131). As described in the previous section, these activity participation rates were, in part, personality related. Our hypotheses about time spent on activities were not supported

(Supplementary Tables 2 and 3 for zero-order and standardized regression coefficients): Extraversion was not significantly related to the amount of time spent in any activity, and conscientiousness was only significantly related to the amount of time spent alone, $\beta = 0.06, p < .05$. Due to the skewness, we log transformed time for seven out of eight of

Table 3. Regression Coefficients for Extraversion and Conscientiousness Associated With Activity-Related Affect for Each Activity

	Extraversion		Conscientiousness	
	Activity-related positive affect	Activity-related negative affect	Activity-related positive affect	Activity-related negative affect
Watching TV (<i>n</i> = 5,386)	β	β	β	β
Extraversion	0.06***	-0.04*	—	—
Conscientiousness	—	—	0.04*	-0.07***
ΔR^2	.002***	.002*	.002*	.004***
Total R^2	.18	.17	.18	.17
Zero-order correlations	.26***	-.14***	.20***	-.20***
Work/Vol (<i>n</i> = 1,318)				
Extraversion	0.08*	-0.07	—	—
Conscientiousness	—	—	0.07	-0.08
ΔR^2	.005*	.005	.004	.005
Total R^2	.29	.21	.29	.21
Zero-order correlations	.36***	-.16***	.27***	-.18***
Exercise (<i>n</i> = 2,418)				
Extraversion	0.10***	-0.05	—	—
Conscientiousness	—	—	0.03	-0.08***
ΔR^2	.007***	.002	.001	.006***
Total R^2	.25	.22	.25	.22
Zero-order correlations	.36***	-.16***	.24***	-.23***
Health (<i>n</i> = 1,730)				
Extraversion	0.14***	-0.03	—	—
Conscientiousness	—	—	0.02	-0.02
ΔR^2	.014***	.001	.000	.000
Total R^2	.19	.23	.18	.23
Zero-order correlations	.31***	-.15***	.18***	-.17***
Travel/Commute (<i>n</i> = 2,776)				
Extraversion	0.08***	-0.05	—	—
Conscientiousness	—	—	0.05	-0.07*
ΔR^2	.004***	.002	.002	.004*
Total R^2	.22	.17	.22	.18
Zero-order correlations	.30***	-.14***	.22***	-.19***
Socializing (<i>n</i> = 2,933)				
Extraversion	0.07**	-0.05	—	—
Conscientiousness	—	—	0.10***	-0.09***
ΔR^2	.004**	.002	.008***	.006***
Total R^2	.22	.14	.22	.14
Zero-order correlations	.28***	-.13***	.27***	-.20***
Spend time alone (<i>n</i> = 2,233)				
Extraversion	0.06	-0.02	—	—
Conscientiousness	—	—	0.02	-0.02
ΔR^2	.003	.000	.000	.000
Total R^2	.30	.29	.30	.29
Zero-order correlations	.33***	-.15***	.24***	-.19***
Errands (<i>n</i> = 2,131)				
Extraversion	0.08**	-0.06*	—	—
Conscientiousness	—	—	0.09***	-0.03
ΔR^2	.005**	.003*	.006***	.001
Total R^2	.26	.18	.26	.17
Zero-order correlations	.33***	-.16***	.27***	-.15***

Notes: Standardized coefficients presented; *ns* vary depending on reported activity participation.

ΔR^2 represents the amount of variance in activity-related affect explained by individual differences in extraversion or conscientiousness. This analysis includes all covariates: gender, race, age, education, work status, marital status, depressive symptoms, functional limitations, type of day, trait positive affect and trait negative affect, and time spent in activity (in minutes).

Total R^2 represents the total amount of variance in activity-related affect explained by the entire model.

* $p < .05$. ** $p < .01$. *** $p < .001$. Bonferroni correction applied.

the activities (the exception was work/volunteer). Results did not change for extraversion. For conscientiousness, the finding for time spent being alone was no longer significant. The relationships between covariates and time spent in activities (also included in the [supplementary tables](#)) show patterns consistent with the literature ([Krantz-Kent & Stewart, 2007](#)). For example, people spent more time on the weekends watching TV and socializing, but less time working/volunteering; those with more functional limitations spent more time watching TV.

Additional sensitivity analyses using the standard Heckman selection model (1976) were conducted to test for selection effects in the relationships between activity participation and time allocated to each activity. Compared with the results reported earlier, all but one effect remained the same (the relationship between extraversion and the likelihood of being alone). Four additional findings emerged at the p less than .05 level: extraversion and the likelihood to travel, as well as time spent travelling; extraversion and time spent watching TV; and conscientiousness and time spent watching TV.

Personality and Activity-Related Experiences of Positive and Negative Affect

[Table 3](#) presents zero-order and standardized regression coefficients for the separate associations between extraversion or conscientiousness and activity-related experienced positive affect and negative affect from models that include all covariates. Similar to findings for the previous two indicators of engagement (activity participation and time spent), there was partial support for our hypotheses. Extraversion was associated with higher activity-related positive affect while socializing, $\beta = 0.07$, $p < .01$, watching TV, $\beta = 0.06$, $p < .001$, traveling, $\beta = 0.08$, $p < .001$, and exercising, $\beta = 0.10$, $p < .001$. Not hypothesized were significant relationships between extraversion and higher activity-related positive affect while working/volunteering, health-related activities, and running errands, as well as lower activity-related negative affect while watching TV and running errands.

Although conscientiousness was associated with lower activity-related negative affect while exercising, $\beta = -0.08$, $p < .001$, and higher activity-related positive affect when running errands, $\beta = 0.10$, $p < .001$, it was not significantly related to activity-related affect while participating in health-related activities or working/volunteering. Conscientiousness also showed some significant nonhypothesized relationships with higher activity-related positive and lower activity-related negative affect while watching TV and socializing.

The relationships between covariates and activity-related affect, although not presented in [Table 3](#), may again be of interest. For example, weekends were associated with higher activity-related positive affect (but not lower activity-related negative affect) while watching TV, traveling/

commuting, and socializing. Having more functional limitations was associated with lower exercise-related positive and higher exercise-related negative affect, as well as higher negative affect while participating in health-related activities.

Discussion

This study provides new insight into the role of personality in activity engagement in everyday life after age 50. Furthermore, the fine-grained information concerning associations between personality and participation in specific activities, time spent in those activities, and activity-related affective experiences highlights the complexity of the concept of activity engagement. We found mixed support for our hypotheses concerning the congruence between specific personality traits and activity engagement. This complexity is likely hidden in research that uses only frequency ratings of activity participation (e.g., [Jopp & Hertzog, 2010](#)).

Consistent with our hypotheses concerning personality and activity engagement, older adults with high levels of extraversion were more likely to socialize and less likely to be alone. Although extraversion was not associated with spending more or less time in these activities, it was associated with high levels of positive affect while socializing. High levels of conscientiousness in older adults were related to less negative affect while exercising. However, some results were inconsistent with our hypotheses. Although high extraversion was associated with less likelihood to be alone, it was not related to spending less time alone, or more negative or less positive activity-related affect in doing so. In fact, extraversion was not related to spending any more time in activities with higher participation or enjoyment. Similarly, high levels of conscientiousness were not associated with higher participation in exercising or more time spent doing so; conscientiousness was also not associated with any of the three activity engagement aspects (participation, time spent, and affect) of health-related behaviors or working and volunteering.

Some nonhypothesized findings also emerged. Extraversion was related to increased participation and positive affect while exercising, but not time spent doing so; enjoyment during health-related activities, running errands, and working/volunteering was also related to extraversion, but not participating or time spent in them. High levels of conscientiousness were related to enjoyment while watching TV and socializing, but not participation in or time spent doing so. Conversely, the likelihood of being alone and time spent alone were associated with conscientiousness, but enjoyment of doing so was not.

Our findings were consistent with the literature concerning extraversion. For example, [Jopp and Herzog \(2010\)](#) found a relationship between extraversion and frequency of socializing, and [Oerlemans and colleagues \(2011\)](#) reported that extraverts also experienced greater happiness while socializing. However, unlike [Mike and colleagues \(2014\)](#)

and Takahashi colleagues (2013), we found that conscientiousness was not related to engagement in volunteering or health-related activities, respectively. Perhaps our contrasting results can be explained by the advanced age of our sample or the inclusion of different covariates (e.g., functional limitations). We also used different measures of conscientiousness and activities. Additionally, conscientiousness may have a more nuanced association with activity-related affect rather than more global measures of affect or well-being (DeNeve & Cooper, 1998). Moreover, the HRS day reconstruction measure may not have included activities in which conscientious people fully engage, such as hobbies and household chores. Including such activities in future research could delineate clearer links between conscientiousness and activity engagement.

While there is little research examining the association between personality and activity engagement in younger adults, there is some evidence that the relationship is at least as complex as in the current study (Anusic, Lucas, & Donnellan, 2015). Moreover, a particularly interesting finding in the current study was the lack of alignment between the three aspects of activity engagement and personality, suggesting that the likelihood of participating in an activity is not consistently related to the amount of time spent in it, and neither likelihood to participate nor time spent is an indication of how enjoyable the activity is. These findings point to the complexity of activity engagement, suggesting that measures of likelihood and frequency provide limited, albeit useful, information. Individuals high in extraversion or conscientiousness enjoyed certain activities that they were no more likely to do, or in which they spent more time. Perhaps these activities are routine yet welcome, such as watching TV, or they may be activities that provide familiarity and comfort, with a long history of engagement, such as socializing. Activities that provide enjoyment could potentially be targeted to maximize affective experience on a daily basis.

It is also important to note that personality was only one of a number of factors contributing to participants' activity engagement; its role in activity engagement, over and above any personality-related variance shared with other covariates (Lindenberger & Pötter, 1998) was relatively small (see also Anusic, Lucas, & Donnellan, 2016). This suggests that responses to questions about activity engagement in the context of a day reconstruction measure may be less subject to biases that reflect personality dispositions than more global measures.

Limitations and Outlook

The present study was limited to examining personality and activity engagement in a single day using eight everyday activities targeted in a particular day reconstruction measure; future work could compare the role of the Big Five traits in responses to the original DRM and a global checklist of activities. Studies could also examine hypotheses

concerning personality congruence with a wider range of activities and additional dimensions of engagement (e.g., motivation for doing an activity; social and environmental context of activities).

The current research groups together some qualitatively different subactivities, such as traveling/commuting, making it difficult to sensibly hypothesize an outcome. Moreover, the meaning and quality of particular activities may change with age. For instance, exercise at age 50 may represent health maintenance, whereas at age 80, it may be less vigorous and represent an opportunity for social contact; what older adults consider to be exercise may involve walking to the mailbox instead of running a 5K race. However, the HRS questionnaire was intentionally designed as a generic instrument that could be relevant to the wide age range (50 to 100 years) of panel participants; different population subgroups could be selected for different target activities.

In this study, missingness for extraversion, conscientiousness, and all covariates is not completely at random; this could potentially have biased our results, especially for the time spent in an activity which is a function of activity engagement. We attempted to address this concern through the Heckman selection model; however, more research is needed to understand these complicated dynamics that do not represent data problems but are part of the phenomenon being studied (one can't spend time on an activity in which one chooses not to engage). Other measurement issues to examine in future research include a broader range of activity-related affect items and personality assessments. In the present study, the positive affect items were conceptually closer to each other (content, happy, interested) than the negative affect items (sad, frustrated, bored); more items for both positive and negative activity-related affect could provide nuanced information concerning a spectrum of affect facets.

In addition, daily assessments of personality might also be beneficial: The current study measured personality at the trait level, but it might be possible to assess personality at a state level using a day reconstruction approach. Fleeson (2001), for example, assessed behavioral manifestations of the Big Five traits in a momentary measure. Such a procedure could be useful to more clearly determine the association of concurrent personality-related behavior to participation and time spent in, as well as related affect for, each activity; in this way, possible mechanisms associating personality and activity engagement could also be addressed. Future research might also benefit from an examination of profiles or clusters of personality traits, and how these are related to the types of activities in which older adults engage. Such research would help to further contextualize activity engagement and potentially provide information to guide older adults in their daily health and care regimens.

Supplementary Material

Please visit the article online at <http://gerontologist.oxford-journals.org/> to view supplementary material.

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Conflict of Interest

The authors reiterate that they have no conflict of interest in the research conducted or represented in this manuscript.

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