



Discretionary Time Over Time: A Longitudinal View of Adults' Lives and Leisure

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Abstract

This study examined how middle-aged adults perceive discretionary or free time in their lives and the ways in which their life experiences and reflections on life structure are related to these perceptions. Research focused specifically on how changes in perceptions of available discretionary time were related to changing life experiences, assessments of life structure, and perceptions regarding leisure over a nine-year period. Data came from the longitudinal investigation of leisure, life perceptions, and life values: *A Study of Leisure During Adulthood, ASOLDA*. Descriptive statistics and mixed models were used to examine longitudinal quantitative data from eighty-four study participants. Results indicated that perceptions of time scarcity were most common for adults in years in which they had experienced more negative life events, especially when these life experiences prompted them to rethink and re-evaluate their lives. This pattern was most marked for those who had more positive perceptions of leisure. Data from four qualitative case studies further illustrate findings and future theoretical directions are discussed.

Key words: discretionary time, life experiences, life structure, leisure perceptions.

<https://doi.org/10.32797/jtur-2018-3>

1 Introduction

While time is certainly a quantifiable, objective entity involving a 24-hour repeating cycle, people experience and perceive time in different ways. Perceptions of time, and especially the time available for discretionary or leisure purposes, not only vary from one person to another, but also over the life course. These perceptions can be influenced by life experiences, social roles, and responsibilities, all of which vary from one person to another and over time for individuals. Understanding the relationships among these variables can be challenging. While some aspects of middle-aged adults' lives, such as those related to educational training, are relatively stable, many life experiences, such as those involving family responsibilities,

occupational roles, and health, embody significant changes. Cross-sectional methodologies are effective in describing associations at one time point, but studies using longitudinal methodologies provide the data that is more likely to assist researchers in better understanding intra-individual and inter-individual variations across the life course. This paper employs such a longitudinal approach, using data from a unique panel study that followed a sample of middle-aged respondents over a decade. The purpose of this study was to examine perceptions of time, and specifically time scarcity, in relation to perceptions regarding leisure, life experiences, and life structure during middle adulthood.

2 Literature Review

This review begins with perceptions of time focusing on the concept of time scarcity. Theoretical discussions of change during middle adulthood and studies of the relationship of leisure views and social roles to perceptions of time scarcity follow.

2.1 Time scarcity

The concept of time has frequently been linked to leisure. But, defining leisure only one way has proven difficult for those wishing to observe and measure the concept. Developing a precise definition has been regarded as a challenge (Kleiber, Walker, and Mannell, 2011) in part because leisure is multifaceted and means different things to different people. To some leisure may embody activities, while to others it may mean states of mind. Few leisure scholars regard leisure as nothing more than free time (Chick, 2010). Theorists and researchers over the years have presented a variety of definitions, viewing leisure as participation in recreational or cultural activities, by settings in which it is experienced, and as time free from obligation. It is from this third conceptual base, time free to do whatever one wants to do, that this study emerged.

In seminal work, Steffan Linder (1970) brought attention to the concept of time scarcity. Linder was the first economist to understand and predict that the acceleration of consumption for products and services would increasingly take time away from other life pursuits creating a hectic, never satisfied, materialistic frenzy (Russell, 2017). From a supply and demand perspective Linder (1970) posited that an individual's demand for time is usually sufficiently high in relation to the supply to make time a scarce commodity in the economic sense. He noted that while time, unlike other economic resources, cannot be accumulated, there does exist a certain supply of time and a certain demand for time. His categories of time included 1) work time, which affects both the supply and the demand for time on other activities, and noting that the level of income will affect allocation of time; 2) personal time, involving time for subsistence and maintenance of one's goods; 3) consumption time, involving the use and allocation of limited resources; 4) time devoted to the cultivation of mind and spirit; and 5) time idleness, resulting from unemployment, poverty, as well as enjoying a relaxed life. Further, Linder's writings identified characteristics of what he called Time Surplus Cultures and Time Scarcity Cultures.

Time scarcity has been the topic of much discussion and research across a wide variety of interests in the study of leisure. The lack of discretionary or free time for leisure has been an historic and contemporary area of inquiry (e.g., Fabun, 1967; Gray, 1971; Veal, 2011), as have inequities in the distribution of free time by gender or class (deGrazia, 1962; Moore, 1963; Veblen, 1899). Numerous researchers who have studied time use patterns across different subgroups of adults have reported that the availability of leisure time varies from one person to

another and is often hard to acquire (Anttila et al., 2009; Millward & Spinney, 2009; Robinson & Godbey, 1997, 2008; Schor, 2003; Thompson et al., Grant, 2002; Veal & Lynch, 1996; Zuzanek, 1998). Studies of middle-aged adults using the longitudinal data employed in this study also document the uneven distribution of free time across the life course, reporting that middle-aged adults typically desire more time to pursue leisure than they believe that they have. That is, they typically report a scarcity of time for leisure (Carpenter, 1992, 2003; Janke et al., 2011).

It is important to emphasize that the theoretical writings of Linder and Russell as well as many of the writings related to leisure involve *perceptions* of time scarcity. All people have 24 hours a day at their disposal. Yet, they may desire different amounts of leisure time and have varying perceptions of time scarcity within the context of their lives. Moreover, these desires and perceptions can change over time. The current study was designed to understand *changing perceptions of time scarcity over the life course and what might influence these changes*. An important influence for those in middle adulthood may be the nature of the changes that they experience over time and how their perceptions regarding time were impacted by other aspects of their lives.

2.2 Change during Midlife

Empirical work directly addressing middle adulthood has remained a “rather rare enterprise” according to Wahl & Kruse (2005, p. 27). Middle adulthood was previously considered to be a period in the lifespan characterized by relative stability when little change or development took place until physical decline began to occur in older adulthood. Once dismissed or minimized, researcher interest in studying this portion of the life course started to flourish in the 1970s (Agronin, 2014). As developmental theorists began to focus on this portion of the lifespan, it became apparent that during the three to four decades that make up middle age (often defined as ages 30 through 60), physical, psychological, and social threads of continuity and change were its very nature (Atchley, 1987; Levinson et al., 1978; Levinson, 1996; Lowenthal, Thurnher, & Chiriboga, 1976). In summarizing emerging findings associated with adult development, Knox (1977) noted there were intervening trends of stability and change occurring throughout adult life. Evidence mounted to show that middle-aged adults’ lives were not necessarily static and predictable, as previously thought, but were dynamic and changeable.

Though developmental researchers differed about some aspects associated with continuity and change across the adult lifespan, most agreed that life experiences play an important role because they are primary factors that initiate the reassessment of traditionally held values (Gould, 1978; Lowenthal et al., 1976). In other words, adults’ life experiences can prompt change, reassessment, and development throughout adulthood, and these changes and reassessments may be characterized as either subtle or not so subtle (Levinson, 1996; Levinson et al., 1978). Two concepts in the adult developmental literature that were key elements in this study were midlife adults’ perceptions of their life experiences and their current life structure.

Life Experiences

Life experiences during adulthood have been an important area of research largely undertaken by scholars interested in health related issues. These efforts have focused on identifying typically experienced life events or experiences as they relate to life stress (Dohrenwend & Dohrenwend, 1982; Holmes & Rahe, 1967), health and physical illness (Antonovsky, 1979; Holmes & Masuda, 1974; Kobasa et al., 1982), psychosomatic and psychological disorders (Johnson &

Sarason, 1978; Pancheri et al., 1979; Vinokur & Selzer, 1975), and physical activity (Tsang & Havitz, 2014).

Because middle-aged adults hold a multitude of roles, they experience a wide range of experiences as they age. While not all adults encounter the same events and experiences, it is likely that they will encounter similar ones during this portion of the life course, including death of a parent, health issues for themselves or loved ones, changes in jobs, etc. At the same time, however, those having similar experiences will often perceive the experience in different ways. That is, life experiences may involve objective, external occurrences as well as subjective, internal transitions (Hultsch & Plemons, 1979). Thus, it is important for researchers to look not just at the types of life events and experiences people encounter, but how they perceive them. Perceptions regarding the impact of one's life experiences were of keen interest in this investigation, as well as the way in which these perceptions were related to individuals' views of their life structure.

Life Structure

Building on stage theories advanced by Erikson (1950), Daniel Levinson and his colleagues found the concept of life structure useful in understanding transitional periods during adulthood. Based on multiple and extensive interviews with men and women, they concluded that, at any point in time, an adult's life has a unique structure, pattern or design, which they called the adult's life structure (Levinson, 1978; 1996). Levinson and his colleagues proposed that the sociocultural world, the self, and the individual's participation in the external world were necessary components in understanding adult life structure and adult development – the way in which adults view their life path and purpose.

Components of adult life structure typically include individuals' family, work, relationships, and values. Levinson and his colleagues found that adults moved through alternating periods of time characterized by either questioning or not questioning these components of their life structure. When questioning occurred, it was generally related to previously made life decisions such as those related to family, work, relationships, and values; or to new events happening in their lives. Researchers have used this multidimensional perspective to better understand leisure across the lifespan (Harahousou, 2006; Iso Ahola et al., 1994), continuity and change in values during midlife (Stockard, Carpenter, & Kahle, 2014), and patterns and change in leisure perceptions (Janke et al., 2011). Empirical studies have also shown its utility in understanding such diverse situations as tourists' role preference patterns (Gibson & Yiannakis, 2002), and in the lives of dual-career women (Shank, 1986).

Levinson, et al. (1978) found that an adult's life structure evolved through a sequence of alternating periods of stability and change. They used the term *structure-changing* to describe times when individuals questioned their current life structure and the term *structure-building* to describe times when they were not questioning their current life structure. These alternating periods typically lasted four to eight years, and continued to reoccur throughout adulthood. The researchers found that, when structure-building, adults were reaffirming and giving meaning to choices and decisions previously made in order to maintain their life structure. And, when structure-changing, they were reassessing and questioning previously made choices and decisions, and exploring possibilities for change or modification in their present life structure.

Case studies using the longitudinal data employed in this paper have shown that individual adults are more likely to be in the process of structure-changing when their life experiences are perceived to be more negative than positive (Carpenter, 1994, 1997; Carpenter &

Murray, 2002). What is less clear is how midlife adults' perceptions of time scarcity may be influenced by their perceptions of life structure and, as previously discussed, their life experiences.

2.3 Other Influences

Two additional factors were hypothesized as potentially important influences on adults' perceptions of time scarcity. The first was adults' perceptions of leisure, and the second was demographic variables related to multiple social roles experienced during middle adulthood.

Valuing Leisure

Past research has demonstrated that many people in contemporary society value the pursuit of leisure and that leisure, along with other values related to work, family, and community roles, is important across the life course (e.g., Kelly, 1996; Kleiber et al., 2011; Kleiber & McGuire, 2016). Historically leisure has been found to be a source of life meaning contributing to human development (e.g., Dumazadier, 1967; Kaplan, 1975; Kleiber, 1999; Parker, 1971; Neulinger, 1974; Roberts, 1970) and associated with a positive affect and lack of self-consciousness (Samdahl & Kleiber, 1999). It is logical to assume that valuing leisure would be related to midlife changes and transitions (Carpenter & Robertson, 2000), and to changing perceptions of life structure as described by Levinson and colleagues and perceptions of time scarcity.

There have, however, been few longitudinal studies of changing perceptions of leisure, even though leisure researchers have endorsed the importance of such work (Kleiber & Genoe, 2012; Nimrod & Janke, 2012). Studies using the longitudinal data analyzed in this paper found both stability and continuity in leisure values, leisure attitudes, and perceived levels of freedom in leisure during middle adulthood (Stockard et al., 2014; Janke et al., 2011) and a consistency in leisure perceptions among those coping with the death of someone emotionally close (Hendrick, 1995). But, the authors found no previous studies that explicitly examined the way in which changing perceptions of leisure in midlife were related to changing perceptions of time scarcity, life experiences and life structure over time.

Social Roles

Multiple social roles are typical for most people during middle adulthood. It is not uncommon to find adults having roles of spouse, partner, sibling, parent, worker, offspring, friend, grandparent, caregiver, and volunteer. Often, however, the responsibilities associated with various adult roles can impinge upon each other (Zuzanek & Mannell, 1998). Finding discretionary or free time during middle adulthood typically revolves around balancing social role demands, and, since most adults play many roles, free time may be hard to come by. To use Linder's economic terms, the supply of discretionary time may be less than the demand.

At the same time, during middle adulthood, social roles and obligations may change as individuals experience life transitions. Kleiber (1999) noted that conditions of constraint, demand, and responsibility vary dramatically in their impact on leisure. Primary life components such as work and family likely require the most time during middle adulthood, but over a period of years one would expect variability as work patterns and family structures change. In other words, through midlife, as social roles and the associated responsibilities change, perceptions of time scarcity might be expected to change. In addition, social roles influence adults' lives by defining components that make up their unique life structure and are likely related to structure-building and structure-changing. It is not clear, however, to what extent variables related to

social roles impact variations in perceptions of time scarcity over the life course independent of variables related to life experiences and life structure.

2.4 Summary and Research Questions

This investigation emerged from these theoretical perspectives on time scarcity, change during midlife and the lack of systematic research in this area. There appeared to be remarkably little, if any, previous research regarding how middle-aged adults perceived time scarcity over the life course and the ways their life experiences and life structure, as well as their views of leisure and social roles, were related to these perceptions. Based on the literature reviewed above, it was hypothesized that, at any given time period, individuals' perceptions of time scarcity would be influenced by life experiences, life structure, views regarding the extent to which they valued leisure and social roles. Moreover, it was expected that changes in perceptions of time scarcity would be related to changes over time in these other variables.

3 Methodology

The sections below describe the study design and sample. Measures used to gather data and analysis procedures are described.

3.1 Design and Sample

Longitudinal methods have been recommended as the best way to promote confidence in conclusions regarding changes in behavior and attitudes over the life course (Mannell & Kleiber, 1997). The data for this study came from *A Study of Leisure During Adulthood (ASOLDA)*, a 10-year longitudinal study conducted from 1987 to 1996 and designed to examine variation and stability in leisure, life perceptions, and values among a sample of middle-aged North American adults. *ASOLDA* employed a panel design. Because panel studies follow the same individuals from one time period to the next they are especially appropriate for understanding factors that contribute to change and continuity over the life course (Payne & Zabriskie, 2014). They allow researchers to analyze overall respondent trends and to identify at what point, and perhaps why, respondents' perceptions changed.

ASOLDA participants were originally recruited from a pool of respondents who had participated in two different cross-sectional studies on adults and leisure: a study of individuals who had expressed interest in a health and fitness program at a university in the northwestern United States and a study involving adults from around the country (total $n = 167$, see Carpenter, 1992). Respondents from those studies who were between the ages of 30 and 60 were invited to participate in the long-term study (*ASOLDA*) and 84 of those contacted (50%) consented to do so. All procedures required to protect the rights of human subjects were followed and approved by the authors' university. Findings cannot be generalized to represent a greater population of middle-aged adults. The strength in *ASOLDA* data lies in the repeated responses obtained over time from the same individuals.

ASOLDA data were obtained yearly via mail-out, mail-back questionnaires. During the course of the study, two of the original 84 respondents died and one participant asked to be removed from the study. Of the remaining 81 participants, 68% ($n = 55$) completed the questionnaire every year and another 14% ($n = 11$) completed the questionnaire for nine out of ten years. Only 15% of the sample responded four or fewer times over the ten years. Questions relevant to the analysis in this paper were only asked in years 2 through 10 of the survey. Yet

data were available for 82 of the original 84 participants for at least one year for each of the key variables. There were 544 observations in the analysis, a range of 1 to 9 years per respondent and an average of 6.6 data years per respondent.

Almost all of the respondents were of European descent, and about three-fifths (59%) were women. Slightly more than half (52%) were married at the start of the study, although that percentage decreased to 45% by 1996. Respondents were well educated with over half (56%) having a graduate degree and the majority employed in professional fields. In the first year of data collection, 47% of participants earned mid-range salaries (\$20,000 to \$49,000) and 24% earned over \$50,000 a year. Most resided in mid-sized cities or towns. At the start of the study participants were between the ages of 31 and 63 years of age. At the end of the study the average age was 52.6 years, although women were slightly younger than men (aged 51.6 and 54.0 years respectively).

3.2 Measures

The *ASOLDA* data set provided yearly measures of respondents' perceptions of time (time scarcity). It also included measures of the respondents' perceptions regarding leisure, reports of their life experiences, perceptions of life structure, and various role related variables.

Time Scarcity

The measure of time scarcity was based on Linder's conceptualization discussed in section 2.1: the difference between the perceived supply and demand of time. It was derived from participants' responses to two open-ended questions: (1) "On average, how many hours of leisure per week do you presently experience?" And (2) "On average, how many hours of leisure per week would you prefer to experience?" The difference of these values was examined as both a continuous variable and categorical variable. As explained more fully in the discussion of univariate results (section 4.1) the multivariate analyses operationalized time scarcity as a dummy variable, distinguishing those who perceived a substantially larger need for more leisure time (more than eight extra hours a week, approximately equal to the median of the distribution) from those who perceived a smaller gap. In other words, the dependent measure was a dummy variable with a score of one indicating that respondents perceived greater time scarcity. Substantively identical results, available from the authors, were obtained with alternative operationalizations.

Change During Midlife

Two measures of change were used, both of which built on the literature discussed in section 2.2. The first measure, life experience, captured the extent to which respondents' experiences within a given year were perceived as either positive or negative. Their perceptions were derived from the Life Experiences Survey (LES), developed by Sarason, Johnson, and Siegel (1978). The LES lists 47 specific experiences common during middle adulthood such as change in employment, financial status, family members, residence, and the like. The instrument allowed respondents to 1) specify which life experiences listed on the survey occurred to them during the previous twelve months, 2) add other life experiences that were not listed, and 3) rate the positive or negative effect of each experience on a scale ranging from plus three (+3) to minus three (-3). The average rating for each respondent's life experiences over the previous year was calculated. For the analyses reported in this paper the ratings were collapsed to a dichotomy that indicated if the overall perception of transitional situations was positive (coded one) or neutral or negative (coded zero). Identical substantive results, available on request, occurred when the measure was treated as continuous.

The second measure of change was respondents' self-reported perceptions of their life structure using the Life Structure Assessment (LSA), a measure developed for *ASOLDA* designed to identify whether participants believed they were in a period of stability or change and based upon Levinson's studies of adult development described above in section 2.2.2. After reading a detailed description of Levinson's typology, participants were asked to indicate whether they felt they were structure-building, "in the process of making key choices and decisions which are forming my life structure," or structure-changing, "in the process of questioning....reassessing rather than reaffirming certain aspects of my present life structure." This was also measured as a dummy variable with a code of one indicating a response of structure-changing.

Other Variables

Six other variables, each of which tapped elements related to individuals' social roles and their views regarding leisure, were used. Three of the measures were time-invariant, measured at the start of the study: age, education, and gender. Age was measured in years; education was measured on a seven-point scale with seven indicating post-graduate work; and gender was measured as a dummy variable with a code of one indicating male.

The other three variables were time-varying: income, partnered status, and leisure perceptions. Income was measured with a detailed categorical measure and treated as continuous for analysis. Partnered status was a dummy variable, distinguishing those who were married or partnered from other respondents. Leisure perceptions were measured with a composite scale derived from three different indicators: The first was the ten-item Leisure Ethic Scale (Crandall & Slivken, 1980), which asked respondents to rate the extent to which they agreed with statements such as "My leisure is my most enjoyable time," "I don't feel guilty about enjoying myself," and "Most people spend too much time enjoying themselves today." The second was the Valuing Leisure Scale (Carpenter, 1992) in which respondents were asked to place a checkmark along a four-point continuum marked "low to high" in response to the phrase, "Generally speaking, I value leisure this much". The placement was recorded as a number ranging from 0.0 to 4.0, with 4.0 corresponding to the highest point. The third was respondents' ranking of the importance of leisure in their lives relative to family and work, with a value of three when leisure had the highest ranking and one for the lowest ranking. Because the individual items had slightly different ranges of possible values each measure was converted to standard scores (z-scores) with a mean of zero and standard deviation of 1. Results from standard scaling techniques indicated that a composite scale had adequate reliability (Cronbach's alpha = .74), and this composite score was used in the analysis. Results when the three major components of the scale were examined separately were substantively very similar to those reported here and those results are available upon request.

3.3 Analysis

The analysis focused on variations over time in respondents' perceptions of time scarcity and the relationship of these perceptions to changing perceptions of life experiences, life structure, and leisure as well as socio-demographic variables potentially related to social roles. Two levels of analysis were involved: 1) changes over time for each individual, or a within-person, or intra-individual, analysis; and 2) differences between individuals, or a between-person, or inter-individual, analysis.

The first step was calculating descriptive statistics for each of the variables, focusing on the extent to which perceptions of time scarcity varied across the years.¹ Measures of central tendency and dispersion were calculated with both person-years (n=544) and individuals (n=82) as the unit of analysis. For the time-variant measures with individuals as the unit of analysis the average, or mean, deviation was used as the measure of dispersion² because it has a more intuitive interpretation of within-person variation over time than the standard deviation and thus can be seen as substantively more useful.

Mixed models were used to test the hypothesis regarding the relationship of perceptions of time scarcity to changing life experiences, perceptions of leisure and variables related to social roles. In this approach individuals are seen as one level of analysis and the changes within each individual as a second, or subsidiary, level. The analysis may be conceived as involving regression lines for each individual and an examination of the way in which specific independent variables affect both the intercept and the slope of these lines. The independent variables may be those that change over time, such as the indicators of transitional situations, income, partnered status, and leisure perceptions, or those that are constant across time such as gender, education, and age at the start of the study (Bryk & Raudenbush, 2001; Singer & Willett, 2003).

The mixed model approach also allows researchers to compare models with varying combinations of independent variables. Eleven increasingly more complex models were examined using the *xtmelogit* program within Stata. The analysis began with a simple baseline model that only included individuals as a random effect, then added the two measures of life experiences, looking at their separate, joint, and interaction effects; then each of the control variables one at a time in order to preserve degrees of freedom. Individuals were included as a random effect in all models. The best fitting model was determined by examining changes in model fit with the -2 Log Likelihood (-2LL) statistic, which has a chi-square distribution, as well as the magnitude of the Akaike information criterion (AIC) and Bayesian Information Criterion (BIC) statistics. The AIC and BIC are calculated from the log likelihood statistic and provide a simple summary description of goodness of fit. With all three statistics, smaller values indicate a better fit between the model and the data. The relative impact of each variable was examined with the fixed effect coefficients in this chosen model as well as selected less complex models.

Tests were conducted for a variety of additional interaction effects and no significant results, beyond the few that would be expected by chance, were obtained. In addition models that included the survey year as a linear and quadratic variable were examined. As would be expected, given the essentially random nature of transitional situations across time, neither of these variables was significant or produced models that provided better fit to the data.

4 Results

Descriptive statistics on each of the variables used in this study are presented next followed by results of the multivariate analysis.

¹ There were no missing values for the key independent variables regarding change during midlife and discretionary time. However, missing values occasionally occurred for the socio-demographic variables, nine cases for income and 35 for the partnered variable. For income the average value over all years for the participant was substituted and for partnered status the status from the adjacent years was substituted.

² The average deviation is the sum of the absolute values of deviations of individual scores (values at each year) from the mean (the average value for an individual across all years for which the individual had data) divided by the sample size (the number of values for the individual on a given variable) (see Blalock, 1979, pp. 77-78).

4.1 Changing Views of Discretionary Time: Descriptive Statistics

Table 1 gives descriptive information on the data with person-years (n=544) as the unit of analysis. Respondents' perceptions of the availability of discretionary time varied substantially, both between individuals and, within individuals, over time, from having no time at all in some years to well over one hundred in others. They usually preferred having substantially more time, but the preferred number of hours also had a large range. The difference between these two values (the third line of data) was highly skewed. As noted above, to prevent these few cases from distorting overall results the difference was collapsed to a dichotomy at approximately the median, distinguishing respondents who desired nine or more hours than they actually had from those who had a difference of eight hours or less. Further inspection of the responses indicated that those who perceived a substantially greater lack of leisure time (more time scarcity) did so because they reported having less leisure time than others (an average of 18 hours versus 22 for those with a smaller difference), but also wanted to have substantially more time than others did (an average of 41 hours versus 24 for those with a smaller difference).

Table 1: Descriptive Statistics for variables used in analysis: Person-year level

Variables	Mean	Min.	Max	St. Dev.
<i>Perceptions of Time (Time Variant)</i>				
Hours of leisure have	20.1	0.0	120.0	16.4
Hours of leisure prefer	32.0	4.0	168.0	25.2
Difference of hours have and prefer	-11.9	-158.0	60.0	19.6
Prefer more than 8 hours than have	0.5	0.0	1.0	0.5
<i>Life Experiences (Time Variant)</i>				
Aver. positive-negative valence of life events	0.5	0.0	1.0	0.5
Structure changing (=1, structure building = 0)	0.4	0.0	1.0	0.5
<i>Control Variables (Time Variant)</i>				
Leisure attitudes and values scale	0.0	-2.1	1.0	0.5
Income	5.1	1.0	11.0	2.2
Partnered	0.7	0.0	1.0	0.5
<i>Control Variables (Time Invariant)</i>				
Male (=1, female =0)	0.4	0.0	1.0	0.5
Age at start of study (in years)	43.2	28.0	61.0	7.1
Education (7 = post-graduate)	6.0	1.0	7.0	1.4

Note: n=544

Table 2 gives results with individual respondents (n=82) as the unit of analysis, corresponding to Level 2 of the mixed model analysis and providing estimates of intra-individual variability. While the average values were very close to those with person years as the unit of analysis (the top panel), the measures of dispersion were smaller. This result would be expected, for it would be highly unlikely that a single individual would exhibit as much variability as the entire sample. Importantly, however, the ranges and average deviations indicate that respondents' perceptions of discretionary time varied over the course of the study, often

substantially. Such variability indicates that a mixed model approach to analysis, which examines changes within individuals over time as well as variations between individuals, was appropriate.

The measures of change during midlife also indicated substantial variability both between individuals and within individuals over time. The respondents reported a wide range of life experiences typical of those that occur in middle adulthood, such as health issues, deaths of loved ones, changes in employment, and changes in residence. While there was substantial variation from one year to another and one person to another, on average, they reported positive events just over half of the time. Respondents also reported substantial variability over time in their life perspectives, indicating that they were structure-building about three fifths of the time and structure-changing in the remaining periods. Scores on the two measures of change during midlife were correlated, replicating earlier findings (Carpenter 1994, 1997, 2003). In years when they reported more positive experiences, respondents more often indicated they were structure-building. When they had more negative experiences they more often reported they were structure-changing, reassessing or questioning their life structure ($r = .26, p < .0001$).

Table 2: Descriptive Statistics for variables used in analysis: Respondent level

Variables	Mean	Min.	Max	Mean Dev.
<i>Perceptions of Time (Time Variant)</i>				
Hours of leisure have	20.8	4.5	64.3	7.0
Hours of leisure prefer	33.7	7.4	140.0	9.8
Difference of hours have and prefer	-12.9	-110.0	20.0	7.8
Prefer more than 8 hours than have	0.5	0.0	1.0	0.2
<i>Life Experiences (Time Variant)</i>				
Aver. positive-negative valence of life events	0.5	0.0	1.0	0.3
Structure changing (=1, structure building = 0)	0.4	0.0	1.0	0.3
<i>Control Variables (Time Variant)</i>				
Leisure views	0.0	-1.7	0.8	0.2
Income	5.2	1.0	8.8	0.8
Partnered	0.7	0.0	1.0	0.1
	Mean	Min.	Max	St. Dev.
<i>Control Variables (Time Invariant)</i>				
Male (=1, female =0)	0.4	0.0	1.0	0.5
Age at start of study (in years)	44.0	28.0	61.0	7.4
Education (7 = post-graduate)	6.0	1.0	7.0	1.4

Notes: N=82; The statistics for time-varying variables for respondents as the unit of analysis were calculated by computing the mean score across the 9 years on each measure for each person and the average deviation of their responses. The values in the table represent the mean of these values across all the respondents. For the time invariant variables, standard deviations, rather than average deviations, are reported. Data were available for an average of 6.6 years for each respondent.

There was also substantial variability between individuals and over time on the time-varying control variables. Leisure perceptions were the most variable, followed by income. There was the least variability in partnered status, with only a few respondents reporting changes in this area. In general, the results indicate that, over the years in the analysis, respondents had varying perceptions of time scarcity as well as varying life experiences, reflections, leisure perceptions, and, to a smaller extent, income.

4.2 Explaining Variations in Perceptions of Time Scarcity: Mixed Models

Table 3 gives the model fit statistics for the logistic mixed models regressing perceptions of time scarcity on life experiences and the control variables. The first two columns give the model number and variables included in each model, and the remaining columns report the -2 Log Likelihood statistic, the change in this statistic from one model to another, the degrees of freedom associated with the change, and the AIC and BIC statistics. The footnote to the table provides details on the nature of each comparison involved in the calculation of the change statistic. Inspection of the results indicated that models 6 and 8 potentially provided the best fit. The former includes the two measures of change during midlife as well as the control variable related to leisure perceptions and the latter also includes education.

Table 3: Models and Fit Statistics, Time Scarcity During Mid-Life Regressed on Life Experiences, Leisure Views, and Socio-Demographic Variables

Model #	Variables Included	- 2 Log LL	Change in -2 LL	DF	AIC	BIC
1	Intercept (I) (baseline)	654.7	-----	-----	656.7	1.31
2	I, Changing Structures (C)	650.4	4.4*	1	654.4	1.31
3	I, Positive Experiences (P)	647.5	7.2**	1	651.5	1.30
4	I, C, P,	644.9	9.8**	2	650.9	1.30
5	I, C, P, Inter. of P&C	644.2	0.7	1	652.2	1.30
6	I, C, P, Leisure Views (L)	630.5	14.4***	1	638.5	1.28
7	I, C, P, L, Age	629.5	1.0	1	639.5	1.28
8	I, C, P, L, Education	626.9	3.6 ^a	1	636.9	1.27
9	I, C, P, L, Income	629.5	1.0	1	639.5	1.28
10	I, C, P, L, Partnered	629.5	1.0	1	639.5	1.28
11	I, C, P, L, Male	630.1	0.4	1	640.1	1.28

Note: Fit statistics were calculated by subtracting the -2 log likelihood value for a given model from the -2 LL value for a less complex model. The differences have a chi-square distribution. The statistics for Models 2, 3, and 4 were compared to the baseline model (number 1). Models 5 and 6 were compared with Model 4, and models 7 to 11 were compared to Model 6. Notes for significance levels: a, $p < .10$; *, $p < .05$; **, $p < .01$; ***, $p < .001$.

Table 4 gives the fixed effect coefficients associated with Models 2, 4, 6, and 8, facilitating examination of the way in which estimates of the relationship of key variables to perceptions of time scarcity changed as additional controls were entered. Results indicate that respondents perceived greater time scarcity in years that they saw themselves as structure-changing and when their life experiences had been less positive. However, the relationship of

structure-changing to perceptions of time scarcity declined substantially when the positive/negative nature of experiences was added (Model 4). This indicates that some of the relationship of life structure to perceptions of time scarcity can be explained by the relative positive or negative valence of life situations within that year.

Results in Model 6 indicated that respondents with more positive leisure perceptions were significantly more likely to perceive time scarcity. The coefficient associated with life structure declined slightly with this addition, while the relationship of having relatively fewer positive experiences became substantially stronger. In other words, the strength of the influence of positive or negative life experiences on perceptions of time scarcity became more apparent when leisure perceptions were controlled. Respondents for whom leisure was more important were especially likely to desire more leisure time in years in which they had relatively more negative life experiences.

The final model, Model 8, added education. Comparing the fixed effects in Model 8 with those in earlier models indicates that the influence of education was independent of the other variables. Respondents with higher levels of education were only slightly ($p < .10$) more likely to report time scarcity and there was little change in the other coefficients when education was added to the model.

Table 4: Fixed Effects Time Scarcity During Mid-Life Regressed on Life Experiences, Leisure Views, and Education, by Model

Variables	Model 2		Model 4		Model 6		Model 8	
	<i>b</i>	<i>se</i>	<i>b</i>	<i>se</i>	<i>b</i>	<i>se</i>	<i>B</i>	<i>se</i>
Structure Ch.	0.51*	0.25	0.40	0.25	0.35	0.25	0.35	0.25
Pos. Exper.	-----	-----	-0.59*	0.25	-0.71**	0.26	-0.74**	0.26
Leisure Views	-----	-----	-----	-----	1.12***	0.30	1.13***	0.29
Education	-----	-----	-----	-----	-----	-----	0.30 ^a	0.16
Constant	-0.35	0.26	0.01	0.29	0.11	0.28	-1.66 ^a	0.98

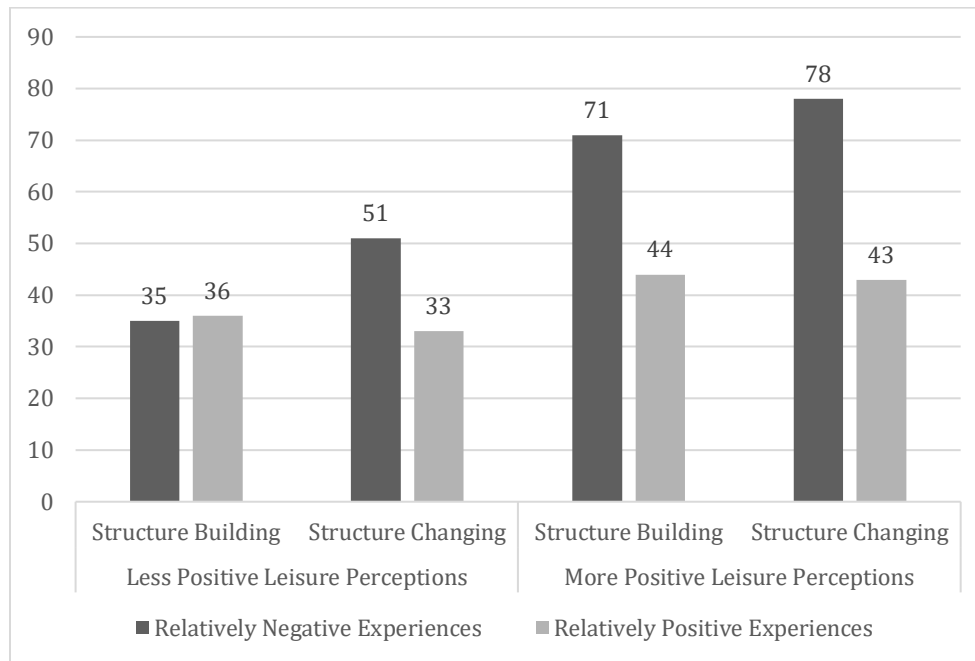
Note: All models included individual respondent as a random effect. Probability levels: a $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

Figure 1 illustrates the relationship between the four key variables included in Model 6: changing perceptions of time scarcity, positive/negative life experiences, life structure, and leisure perceptions. The figure is based on data from all person years, and, for purposes of the figure, the measure of leisure perceptions was dichotomized at the median of the distribution. The bars in the figure show the percentage of respondents who indicated that they wanted nine or more extra hours for leisure each week, that is, the percentage of respondents who indicated greater time scarcity. Results on the right of the figure are for those with relatively more positive leisure perceptions, and those on the left are for those with less positive leisure perceptions. Within these groups, results are given within the four possible combinations of the measure of life structure and relatively positive or negative life experiences.

The data illustrate the strong influence of life experiences on perceptions of time scarcity over time for middle-aged adults. Those who reported a preponderance of negative experiences over the previous year were most likely to report time scarcity. This was especially marked

among those with more positive perceptions toward leisure and, within that group, among those who reported themselves as structure-changing. The exception involved those with less positive perceptions of leisure and who reported that they were structure-building. In other words, over the nine years of available data middle-aged adults were more likely to report time scarcity in years when they experienced more negative life events and especially when these life experiences had prompted them to rethink and re-evaluate their lives. This pattern was most marked for those who had more positive perceptions of leisure.

Figure 1: Percentage Desiring More than 8 Hours Additional Leisure/Week by Life Structure, Life Experiences, and Leisure Perceptions



5 Summary and Discussion

This paper examined change in middle-aged adults' perceptions of time over time and factors that influenced their perceptions of time scarcity. Using a unique panel study that followed middle-aged adults for a decade, respondents' perceptions of the time they had for leisure relative to the time they would prefer to have experienced were analyzed. Substantial variability was found in perceptions of time scarcity, both between individuals and, for individual respondents, over the life course. The relationship of these perceptions to midlife change was examined by focusing on the perceived positive and negative valence of life experiences and participants' views of their life structure, specifically the extent to which they believed that they were "structure-changing," questioning their life structure, or "structure-building," a time of relative stability. Perceptions of leisure and socio-demographic variables potentially related to social roles were included in the models as control variables. As would be expected, those who had more positive perceptions of leisure were more likely to desire more time for leisure pursuits. At the same time, as hypothesized, life experiences and, especially, the relative positive/negative nature of life experiences had a significant influence on perceptions of time scarcity. Participants were most likely to report time scarcity when, during the previous year,

they had experienced negative life events and reported that they were structure-changing, rethinking and re-evaluating their lives. This pattern was most marked for those with positive perceptions of leisure. Only one of the socio-demographic variables (education) was marginally related to time scarcity ($p=.09$), and no interaction effects were significant.

5.2 Insights from Case Studies

Previous in-depth qualitative case studies of participants in the *ASOLDA* research project (see Carpenter, 1997, 2003) and some findings from those analyses help illustrate the patterns found in this quantitative analysis. The experiences of Rick and Rita, a married couple in their mid-forties at the start of the study, typify the pattern shown in the bars on the left side of Figure 1 with less positive leisure perceptions, being structure-building, and perceiving relatively less time scarcity. Relative to others in the study Rick and Rita had less positive perceptions of leisure, almost always ranking leisure as less important than family and work. They were well-educated, held professional positions at a university, and enjoyed a relatively high joint income. Both had been married previously and had children from previous marriages. During the ten years of the study they reported a variety of life experiences. Some were quite negative, including deaths of loved ones and serious illnesses. Rita reported, in the early years, quite negative experiences with work, but she reported more positive experiences after retiring, showing the way in which life experiences varied from one year to another. Yet, throughout all of the study years both Rita and Rick consistently saw themselves as structure-building. Paralleling the results shown in the bars in the left side of Figure 1, the gap between their perceived time scarcity, was relatively small, averaging only five hours per week for Rick and slightly more than nine per week for Rita.

The experiences of Ron who was in his early 50s at the start of the study, illustrate the data in the right side of Figure 1, with more negative life experiences, frequently seeing himself as structure-changing, and perceiving a relatively large amount of time scarcity. Like Rick and Rita, Ron was well educated and held a professional position. But, in a number of other ways, his life was quite different. Ron was single throughout the study and consistently reported very positive perceptions of leisure, ranking it as more important than family or work in half of the years. Over time, he reported a large number of negative life experiences over which he had little control, including family deaths and illnesses, very difficult and changing work situations including retirement, and strained financial circumstances. In sharp contrast to Rick and Rita, Ron reported that he was structure-changing more than half the time and never reported structure-building for two consecutive years. Reflecting the data summarized in Figure 1, he also consistently reported desiring much more leisure time than he had, averaging a time scarcity of 28 hours per week.

While the experiences of Rita, Rick, and Ron describe differences between individual respondents, those of Jeff illustrate the changes in perceptions of time over time for an individual person. Jeff was in his mid-forties at the start of the study, well educated, single, and with very positive perceptions of leisure. At age 50, in year six of the study, he retired from a professional position to pursue other interests. Like the other respondents, Jeff reported a variety of life events, including illnesses, deaths of loved ones, and job related transitions. In the first six years Jeff reported being structure-changing two times: once, in year three, when he had a major illness and the other, in year six, when a close friend died and Jeff decided to retire. In these first

six years, before retirement, Jeff reported that the majority of his life events, and especially his work, were quite negative. At the same time he indicated a high level of time scarcity, consistently desiring many more hours of leisure than he had available. Beginning in year seven, however, life appeared to change dramatically. Jeff reported that his retirement was an extremely positive event. The relative balance of positive and negative experiences also changed markedly for the better. From year seven through year ten, he consistently viewed himself as structure-building and, most important for this analysis, in those years he reported no time scarcity. Thus, Jeff's experiences in the first six years of the study could be said to reflect the high, darker bars on the right side of Figure 1, with relatively more negative experiences, and a large amount of perceived time scarcity. His experiences in the later years, when structure-building, having more positive experiences, and reporting less time scarcity reflect the lighter bars on the right side of the figure.

5.3 Implications for Future Theoretical Directions and Research

These case studies provide individual stories that shed light on *lives being lived* during midlife. They provide inside glimpses of individuals' perceptions about time, leisure, and life structure. Their stories substantiate Levinson's findings regarding life structure – that adults have an underlying pattern or design to their lives that they reevaluate as they continue through midlife. While all four people reported both positive and negative life events, they were rarely rated as extremely traumatic or as crises on the quantitative scale, but generally seen as part of their life experiences. Tsang & Havitz (2014) found that whether individuals were experiencing happy life events or upsetting life events, their leisure values and attitudes toward leisure remained relatively stable. Their findings lend further support to using the impact of life experiences when examining midlife development and perceptions of time scarcity. In addition, other theoretical constructs could provide researchers with a fuller understanding of the relationship of difficult, or traumatic life experiences and perceptions of time scarcity during midlife.

One such theory that has gained attention within the field of adult development is posttraumatic growth (PTG) and positive changes that occur as a result of coping with traumatic life events. Researchers applying PTG concepts are finding that people who experience trauma can experience personal growth in the midst of such trauma (Doppelt 2016; Tedeschi et al., 1998). Some types of growth outcomes from trauma that could have linkages to variables in this study include findings that validate changes in perceptions of self, interpersonal relationships, and philosophy of life (Tedeschi & Calhoun, 1995); general positive life changes (Tedeschi & Calhoun, 2004); and fundamental changes or insights about living rather than simply coping with life's difficulties (Tedeschi et al., 1998). In examining PTG among people with spinal cord injury Chun and Lee (2010) noted that few empirical studies have examined the role of leisure and PTG. Their findings demonstrated that involvement in leisure activities helped people cope with stress, to discover self, and thus be more likely to experience PTG. It is probable that the extensive data generated for *ASOLDA* through the Life Experiences Survey includes examples of traumatic life experiences and PTG. Studies that examine the relationship of perceptions of time scarcity to PTG appear to be very rare. Future research should examine this area during middle adulthood as well as, potentially, other periods of time in the life course.

Given the wide range of discretionary time for leisure reported in this study (4 to 168 hours), knowing more about the underlying reasons for those adults who desired less free time

would add to better understanding of time scarcity during adulthood. Case studies using less than four years of *ASOLDA* data revealed too much time was both positive and negative. In light of life circumstances, Annie whose husband died in the previous year, experienced too much free time (Carpenter, 1994); Dottie who learned she had two years to live, had too little free time (Carpenter & Murray, 2002). Recently Baxter (2011) examined comprehensive data from the Australian Bureau of Statistics 1997 and 2006 Time Use Surveys. Middle-aged adults were included within two of the four sub groups (25-35 and 35-54) in the analysis. Her findings for all age groups revealed that money, friends, family, health, and community facilities were reasons given for having unfulfilled spare time. Another fruitful area of time-related research could expand upon these findings and include efforts that consider which reasons are most closely associated with midlife changes and perceptions regarding life experiences and life structure, leisure values, and midlife social roles.

There were a number of advantages of the data set used in this study. The panel design was crucial in providing continual indicators of our key variables and allowing in-depth examination of changes in perceptions and experiences. This database of qualitative and quantitative data enables researchers to examine intra-individual change over time in leisure attitudes, values, life events, life experiences, desired time for leisure, and perceived freedom in leisure. Longitudinal data, such as this, helps in interpreting change in the same people and in relationship to other people over time. *ASOLDA* respondents' relatively high level of education and commitment to contribute data resulted in a high response rate and detailed information on life experiences and perceptions during the ten years of the middle portion of the life cycle. According to Fiske & Chiriboga (1990), this range of time should be sufficient in capturing possible change, especially in the key variables related to life transitions.

At the same time, there were limitations of the data set, reflecting, to some extent, the flip side of its advantages. Most notably, the sample was quite homogeneous in socio-demographic characteristics, with the vast majority highly educated and in professional positions. While this homogeneity helped to control for variables that might be related to the relationships examined, future research should look at our research questions with samples that are more diverse in social status and race-ethnicity. This analysis was purposefully focused on middle-aged adults, the age group that has more recently been the focus of much of the work related to life change and life structure during adult years. Yet, people in other age groups also experience life changes. A fruitful area of research would be the examination of the relationship of change across the life course, the impact of life experiences, and life structure to perceptions of time scarcity in a variety of age groups. There is evidence of increased interest to better understanding of leisure and aging in research journals featuring special topics (e.g.s., Nimrod, Janke, & Kleiber, 2016; Payne & Zabriski, 2014).

Future research could also make more extensive use of self-reflective measures, especially over a long period of time. The central independent measures in this analysis involved respondents' perceptions of the nature of their life experiences and their life structure. These measures were based on the theoretical work of Levinson and colleagues, and additional inquiry related to variables in this study be explored from other theoretical bases. One relevant lifespan theory could be socioemotional selectivity theory (SST) advanced by Carstensen and her colleagues. The socioemotional selectivity theory (SST) of motivation describes changes in the human ability to monitor time, the adjustment of time horizons with increasing age, and humans'

appreciation that time ultimately runs out (Carstensen & Isaacowitz, 1999). Findings from studies grounded in SST theory report that as people age and increasingly perceive time as finite, they attach greater importance to goals from which they derive emotional meaning (Carstensen, 2006). This subjective understanding of the nature of time would seem to resonate nicely with the subjective nature of the key concepts of time scarcity, perceptions of life transitions, and views of leisure used in our analysis. The findings reported in this study may illustrate the utility of more reflective and repeated measures of the life course, as well as the continuing value of the insights of theorists such as Levinson as well as more contemporary theorists such as Carstensen.

In closing, this study demonstrates the importance of longitudinal examinations of perceptions of time scarcity that include, as explanatory variables, changing perceptions of life experiences, life structure, and leisure. Lifespan researchers note it ironic that there may be a greater variety of theories of midlife development than there are longitudinal data sets against which to evaluate such theories (Willis & Schaie, 2005, p. 245). While perceptions of life experiences and life structure are key elements of midlife development, they have rarely been examined in relation to time scarcity. Theory and research note the key role of leisure in promoting psychological well-being (Mannell & Snelgrove, 2012); the implications of leisure and time perceptions in life domains such as family (Hodge et al., 2016; Melton & Zabriskie, 2016), work, community, and other life situations such as gender, disability, race, ethnicity, and sexual preference (Kleiber et al., 2011); as well as the way in which leisure plays a role in moderating the effects of life events (McGuire & Kleiber, 2016). Yet, there have also been few studies of the relationship of changing perceptions of time scarcity to changing perceptions of leisure. Future researchers are encouraged to pursue understanding of human development across the life course by looking at perceptions of time scarcity in relation to perceptions of life events, life structure, and leisure with samples of varying age ranges and socio-demographic characteristics.

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