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SPORT, LEISURE & TOURISM | RESEARCH ARTICLE

Subjective temporal well-being: Defining, measuring, and applying a new concept

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Abstract: Time scarcity has become part and parcel of our modern predicament, with individuals' temporal experiences emerging as a central factor for their well-being. Despite the widespread experience of time-related problems, however, no comprehensive method to measure the subjective temporal dimensions of this experience have been generally accepted. This article seeks to take a step in addressing this gap by introducing a new concept called "Subjective Temporal Well-being". In the first part of the article, the new concept is defined in its two fundamental dimensions, anchoring it to the experience of a low level of perceived time pressure and a high level of satisfaction with how one's time is spent. Next, the concept is subjected to an empirical examination using a data-set consisting of 1,000 Swedish respondents. The concept is related to other, existing measures of well-being, and the particular characteristics of individuals found in the present research to have especially "high" and "low" temporal well-being are mapped. The concept of Subjective Temporal Well-being is proposed to provide a comprehensible and tangible angle for the study of key dimensions of people's everyday lives, which in some cases can be more suitable than the notion of overall well-being. Finally, the implications of the new concept are explored in terms of its possible applications in statistical surveys and its usefulness for academic research.

Subjects: Sports and Leisure; Sociology of Work & Industry; Positive Psychology

Keywords: time scarcity; work-life balance; well-being; work hours; leisure time

1. Introduction

Time use and temporal experiences constitute central dimensions of human well-being. For the global middle classes, material scarcity has, over time, become less and less significant as a pressing



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PUBLIC INTEREST STATEMENT

For the global middle classes, material scarcity has, over time, become less and less significant as a pressing issue, while time scarcity has, in comparison, begun to grow in importance. In order to be able to talk about, and analyze, these experiences we need useful and precise words and concepts. In this article we suggest three concepts: Subjective Temporal Well-being, with its two dimensions Time Pressure and Time Use Satisfaction. These, and similar concepts, can be used in connection with time use studies as carried out in many countries, and also as a component in measurements of national progress/quality of life which some countries currently are developing.

issue, while time scarcity has, in comparison, begun to grow in importance. Work and commuting as well as norms about e.g. exercise and personal appearance claim more and more of our time, at the same time as the available range of affordable and attractive leisure time activities has drastically expanded over the past century or so. Time scarcity seems, in consequence, to have become part and parcel of the modern predicament and a major concern affecting people's everyday lives (see e.g. Nowotny, 1994). One indication of this is the emergence of new terms to describe value perceptions in pace of life, often taking the form of negative expressions like time pressure, time crunch, time stress, and time squeeze, but sometimes also positive ones as in work-life balance and time wealth.

Several theories have been put forth about what lies behind individuals' experiences of time problems today. These variously propose the issue to be about more demanding working life (Hochschild, 1997), increasing individual wealth (Burenstam Linder, 1970), difficulties in the co-ordination of daily family life (Southerton, 2003), or as a comprehensive theory of how technical acceleration as well as acceleration of social change and pace of life in combination form driving forces of acceleration (Rosa, 2013). Yet, few works have focussed on how the consequences of such developments can be conceptualized and, indeed, measured in terms of time problems of individuals. Both objective and subjective ways to measure temporal dimensions of people's lives, however, are possible.

In both time research and time statistics, the most common approach to temporal measurement has been to focus on objective dimensions like the amount of leisure time available and the number of hours worked. Stiglitz and Sen in their *Report by the Commission on the Measurement of Economic Performance and Social Progress* (2009), for instance, have pinpointed leisure time as a central dimension of quality of life. At the same time, however, the report authors also identify a number of problems arising from the use of the quantity of leisure time as a measure in this regard. One of these is that individual preferences often vary; some may, for example, find it more attractive to work than to have more leisure time. Also political perspectives can influence whether shorter working hours and more leisure time is viewed positively or negatively in society.

Another problem with using the quantity of leisure time as a measure for quality-of-life assessment has to do with the difficulty of categorizing which non-work activities ought to be classified as leisure. To give an example, while socializing is classified as leisure time in time use studies, obligatory dinners with relatives may be hard work for some and thus rather represent anything but leisure to them. Another example is that taking care of one's children is usually not categorized as leisure time (it is typically considered unpaid work instead), and yet, for many, it may represent the most highly valued "non-work" activity of all.

In addition to measuring the quantity of individuals' leisure time in absolute terms, some researchers have gone on to relate the results of these measurements to how much leisure time *other* people have. Bittman (2002), for instance, has defined being "time poor" as having less than 50% of the median amount leisure time of others in the society. Another objective measure proposed is the amount of time one has left after spending the minimal necessary amount of time in paid work. This so-called "discretionary time" is typically calculated by relating the individual's hourly wages to the minimum necessary living costs in the society where one lives (Eriksson, Rice, & Goodin, 2007; Goodin, Parpo, & Kangas, 2004).

What is common to all such objective time measures is that with them, it is someone else who defines what is desirable for those whose time is being measured – for example, that more leisure time would always be better in their view than less leisure time. Researchers of well-being, however, frequently make a point of noting that the actual quality of life cannot be captured using objective dimensions, since individuals tend to have different experiences and expectations (e.g. Diener, Suh, Lucas, & Smith, 1999). Yet, despite all such limitations that objective measures may impose in research, we nevertheless believe them to be able to supply data and information relevant for understanding the relationship between people's temporal situation and their well-being. At the same time, however, we agree that these measures need to be complemented with subjective temporal

indicators. Nevertheless, while a number of different ways to capture individuals' subjective temporal experiences have been proposed in previous research, no comprehensive measurement systems have been generally accepted.

In this article, we want to contribute to the ongoing discussion of subjective temporal experiences by introducing a new concept that we call "Subjective Temporal Well-being".¹ The first, theoretical part of our article defines the two fundamental dimensions of this concept: time pressure and time use satisfaction. After that, the concept is examined empirically, using a data-set consisting of 963 Swedish respondents. The research questions that are scrutinized are firstly how the two different temporal well-being dimensions relate to one another as well as to other well-being measures, and secondly, what are the characteristics of individuals with particularly low and high Subjective Temporal Well-being. Finally, the implications of the new concept are explored in terms of its possible applications in statistical surveys and its usefulness for academic research.

2. The concept of subjective temporal well-being

In statistics and quantitative research, subjective temporal experiences are often captured using a single question investigating things like the respondents' sense of "feeling rushed" or their perceived level of work–family conflict. In some few studies, however, multiple time-related questions have been enlisted to assist the production of indices (e.g. Garhammer, 2002; Robinson & Godbey, 1997). A closer look at the various questions and indices formulated, however, reveals that they both address basically just two different kinds of time experience: one that, typically, centres on one's sense of *time pressure* (the experience of feeling rushed), and another that can be expressed as a sense of satisfaction or dissatisfaction with *the way one's time is spent* (whether one, e.g. experiences a satisfactory work–life balance or perceives oneself as having enough time to e.g. sleep or meet friends). The first one of these is an affective experience and the second one represents the results of a cognitive evaluation. Just as measurements of subjective well-being often involves both an affective and a cognitive dimension (Diener et al., 1999), it makes sense to include both of these dimensions in assessments of temporal well-being, as suggested also by findings from our own qualitative research in the area (references temporarily excluded to make the manuscript anonymous). In what follows, we then attempt to define and operationalize these two aspects of subjective temporal experience, designating them as "time pressure" and "time use satisfaction".

2.1. Time pressure

One common form of temporal experience is that the pace of life is too high in the sense that one lacks time and feels an anxiety of "not keeping up" (Rosa, 2013). This is similar to the concept of Time pressure which is usually defined as the experience of having insufficient time to meet one's obligations (Gunthorpe & Lyons, 2004; Rastegary & Landy, 1993). The essence of time pressure has been described as "harriedness"; the experience of being chased (Southerton, 2003). While frequent experiences of short-term time pressure have by and large become a natural part of everyday life in modern society, chronic time pressure, i.e. when this experience characterizes everyday life for months or years, has been described as posing a serious hazard to health and well-being (Gunthorpe & Lyons, 2004; Robinson & Godbey, 1997). Subsequently our operationalization of the level of time pressure, described below, includes a question of the frequency of experiencing time pressure.

Our operationalization of time pressure also includes the experience of discomfort from having too much to do. Even though there may be positive effects of time pressure, e.g. that it can serve as an impetus to set priorities and hence become more efficient (Widmer, Semmer, Kälin, Jacobshagen, & Meier, 2012), we subscribe to the common view in well-being research that time pressure is predominantly a negative phenomenon (e.g. Gärling, Krause, Gamble, & Hartig, 2014). Time pressure has been shown to be an important factor behind physiological stress reactions, measurable e.g. as higher levels of cortisol, which in turn is associated to a number of different kinds of health problems (Schlotz, Hellhammer, Schulz, & Stone, 2004). Hence, besides measuring *frequency* we also included a question on the *intensity* of the discomfort experience. The wording was the following (translated from Swedish):

- How often do you experience discomfort from the pressure of having to manage everything you need to get done in your everyday life? (Seven-point Likert scale ranging from “Never” to “Always.”).
- How strong do these feelings of discomfort then tend to be if you have them? (Seven-point Likert scale ranging from “Barely noticeable” to “Unbearable.”).

A described in Section 3 an index for time pressure was constructed by summing up the numerical values of the respondents’ answers to the two questions above.

2.2. Time use satisfaction

Measuring this dimension of individuals’ subjective temporal well-being focuses on how they cognitively evaluate the way their time is actually used. One part of this cognitive assessment of theirs covers their experience of work–life conflict, which, according to Duxbury, Higgins, and Coghill (2003), typically involves role overload and work-to-family interference. While, undoubtedly, the degree of perceived work–life conflict forms an important aspect of individuals’ sense of temporal well-being, there are several categories of people like pensioners, students, and the unemployed who may not be engaged in paid work at all but can nevertheless experience dissatisfaction with how they use their time. What this implies is that work–life balance as a concept is too narrow for it to be relevant for all individuals in society.

Another shortcoming of the notion of work–life balance is that it does not cover the extent to which individuals use their time outside of work for activities they personally enjoy and appreciate. While such time use preferences are obviously subjective and vary between individuals, they, however, also vary for the same individuals over time, changing from one life stage to another. Yet, in the literature one finds certain time use categories to have been generally linked to higher levels of well-being. These include socializing, exercising, sleeping, meals, hobbies, and volunteering, and they contrast with time use categories such as commuting and household work, which, on average, have been found to be coupled to lower levels of well-being (Killingsworth & Gilbert, 2010; Krueger et al., 2009). There are, to be sure, also other goals that influence individuals’ time use preferences besides the maximization of well-being, such the enhancement of one’s personal financial security or the development or restoration of a sense of meaning and purpose in life.

In other words, assessing one’s satisfaction with how one’s time is used involves an estimation of whether “enough” time is spent on positively valued activities and whether “too much” time is spent on negatively valued activities. There is, currently, no established term or concept for this assessment or its results, for which reason we have introduced the concept of “time use satisfaction.” This we define as individuals’ degree of subjective satisfaction with how their time is actually spent. The highest level of time use satisfaction is attained when one no longer wishes to introduce any changes to the way one’s time is divided between different kinds of activities (the concept is not intended to cover discontentment with situations where one is unable to spend more time on certain activities without cutting back on time spent on other activities). Correspondingly, low degree of time use satisfaction implies that one only seldom is able to spend time on what one really would prefer to be doing or engage in instead.

In our survey, respondents’ time use satisfaction was measured using the following question (wording is translated from Swedish): *If you think of how your time is divided between, say, paid work, housework, commuting, sleeping, eating, exercising, socializing with family/friends, and other leisure activities, how satisfied are you with the way your time is actually allocated among these different activities during your regular week?* (Seven-point Likert scale ranging from “Very dissatisfied” to “Completely satisfied.”).

Table 1. Descriptive statistics of variables used in analysis, N = 963

	Mean	S.D.	Min.	Max.
Low time pressure	7.4	2.8	1	14
Time use satisfaction	4.5	1.5	1	7
Subjective temporal well-being (index of the two above)	5.2	2.0	0	10
Affective well-being	5.4	1.2	1	7
Life satisfaction	8.4	2.0	1	11
Overall subjective well-being (index of the two above)	7.4	1.9	0	10
Economic satisfaction	4.8	1.7	1	7
Male (%)	45	-	-	-
No. of children	0.6	1.0	0	6
Age (years)	46	13	20	66
Working hours (weekly)	33	17	0	95
Exercise (times per week)	2.6	1.0	0	7
Socializing with friends (times per week)	2.7	0.4	0	7

3. Empirical analysis of subjective temporal well-being measures

In keeping with our exposition above, we define high Subjective Temporal Well-being as indicating the experience of a low level of time pressure and a high level of satisfaction with the way one's time is actually spent. The questions used in this paper is based on only three items. This is due to space constraints in the questionnaire, which had a main focus on examining the links between overall well-being and ecological lifestyles² (Andersson & Nässén, 2016; Andersson, Nässén, Larsson, & Holmberg, 2014). In Section 3, we will present our initial empirical analyses of this concept. All empirical analyses in this article are based on a data-set of 963 respondents living in Western Sweden. The geographical focus on Western Sweden is due to that the funding for the survey came from Region Västra Götaland. However, the characteristics of Western Sweden are rather similar to Sweden as a whole, e.g. it contains both rural areas and a major city (Gothenburg) and has an almost identical median income level (Statistics Sweden, 2014).

A postal survey was sent out in May 2012 to a randomly selected sample of 2,500 individuals aged between 20 and 65 and living in the area. The net response rate was 40 per cent. Based on the responses received, we compared the characteristics of this sample with regional averages, finding some differences. To begin with, women were more likely to answer the survey (55% of the respondents were women). Similarly, also individuals with higher incomes were overrepresented in the sample: the median income of those returning the questionnaire was six per cent higher than the corresponding figure for the total population in the region. Also their average age was higher (by 4 years, for the specified cohort). Finally, the respondents returning the questionnaire had a higher average level of education than those in the region's general population, with 60% of the respondents having completed post-secondary education compared to 39% in the total population in the region.

After presenting the concept of Subjective Temporal Well-being theoretically in the Section 2.2 it is of interest to analyse it empirically in order to find out how the two different temporal well-being dimensions relate to one another and other well-being measures, e.g. do Subjective Temporal Well-being prove to catch something specific or is it just another label on overall subjective well-being? The analysed measures were:

- *Low Time Pressure*: an index constructed by summing up the numerical values of the respondents' answers to the two questions described above in Section 2.1. To make interpretation easier, the scale of this variable was reversed so that it went in the same direction as the other well-being measures (higher score representing higher well-being).
- *Time Use Satisfaction*: see Section 2.2.
- *Subjective Temporal Well-being*: an index in which the affective dimension Time Pressure and the cognitive dimension Time Use Satisfaction carried equal weight. The choice to give them equal weight is in line with that the affective and cognitive dimensions are given equal weight in overall subjective well-being (Diener et al., 1999).
- *Life Satisfaction*: a cognitive evaluation of one's life satisfaction as measured by the question "How satisfied are you overall with the life you live?" with answers given on a 11-point Likert scale ranging from "Not at all satisfied" to "Very satisfied."
- *Affective Well-being*: an affective concept measured with a question about how the respondent was "feeling in general," with answers given on a seven-point Likert scale ranging from "Sad" to "Happy."
- *Overall Subjective Well-being*: an index in which Life Satisfaction and Affective Well-being were given equal weight (Diener et al., 1999).
- *Economic Satisfaction*: a measure assessed by a question about how satisfied the respondents felt with their household's financial situation, with answers given on a seven-point Likert scale ranging from "We are struggling to manage with our current income" to "We manage just fine with our current income." Economic Satisfaction is included in the analysis since it is a central sub-domain of Life Satisfaction and since money, along with time, is a resource for which people commonly experience scarcity.

The second research question is to examine the characteristics of individuals with particularly low and high Subjective Temporal Well-being. The choice of variables for analysing this was limited by space constraints in the questionnaire (which was shared with other research projects). Gender, age and number of children were included in the analysis together with the available time use variables: the number of weekly working hours and the frequency of exercising and socializing with friends (Table 1).

3.1. Correlations between different well-being concepts

Table 2 presents a correlation matrix for the Subjective Temporal Well-being measure along with the other well-being measures. The correlation between the experience of Low Time Pressure and Time Use Satisfaction was found to be 0.40, indicating that these two represent distinct, separate dimensions of Subjective Temporal Well-being. Had the questions measured the same underlying phenomenon, the correlation between them would have been much stronger.

The correlation between Subjective Temporal Well-being and Overall Subjective Well-being was no more than moderate (0.37), contrasting with, for example, the correlation between Affective Well-being and Life Satisfaction which was strong (0.77). Accordingly, Subjective Temporal Well-being appeared to constitute its own distinct aspect of well-being. To some extent, it might therefore be viewed as a sub-domain of Overall Subjective Well-being on par with its other sub-domains such as Economic Satisfaction. Nevertheless, it is also well-known that total experience of life satisfaction cannot be derived straightforwardly by simply looking at the satisfaction experienced in different domains of life (e.g. Rojas, 2006). The survey questions addressing Subjective Temporal Well-being in this study expressly encouraged study participants to reflect on aspects of their time use situation and pay attention to aspects of life that may well have not been covered for them by the more open-ended questions inquiring about their Overall Subjective Well-being.

From the table, one can also note Overall Subjective Well-being to show a stronger correlation with Time Use Satisfaction (0.38) than with Low Time Pressure (0.22). Indeed, the latter correlation is surprisingly weak. However, it may also be the case that the long-term effect of the experience of Time Pressure on Overall Subjective Well-being might not show up in this kind of cross-sectional

Table 2. Correlation matrix for subjective temporal well-being and other well-being measures (Pearson's r)

	Low time pressure	Time use satisfaction	Subjective temporal well-being	Life satisfaction	Affective well-being	Overall subjective well-being	Economic satisfaction
Low time pressure	1						
Time use satisfaction	0.40***	1					
Subjective temporal well-being	0.82***	0.86***	1				
Life satisfaction	0.20***	0.40***	0.36***	1			
Affective well-being	0.22***	0.33***	0.33***	0.77***	1		
Overall subjective well-being	0.22***	0.38***	0.37***	0.94***	0.94***	1	
Economic satisfaction	0.08*	0.23***	0.20***	0.35***	0.29***	0.33***	1

Notes: two-tailed. N = 963.

*p < 0.05.

**p < 0.01.

***p < 0.001.

comparison. Some individuals experiencing very high levels of time pressure and stress may, for instance, develop long-term illnesses and become unable to work. By the time they reach this stage, which, moreover, is likely associated with low levels of Overall Subjective Well-being, the degree of their experienced time pressure may already have decreased substantially.

3.2. Discussion of differences in subjective temporal well-being

Following the correlation analysis above, we set about to examine a second research question: what are the characteristics of individuals with particularly low and high Subjective Temporal Well-being. Empirical comparisons were made between groups reporting low and high Time Pressure and between those reporting low and high Time Use Satisfaction. Groups were constructed containing the upper quartile and the lower quartile of both time pressure or time use satisfaction.³

The results of these analyses are presented in Table 3. The significance levels given refer to the difference, on the one hand, between the quartile of respondents with the lowest Time Pressure and the quartile of respondents with the highest Time Pressure, and, on the other hand, between the quartile of respondents with the highest Time Use Satisfaction and the quartile of respondents with the lowest Time Use Satisfaction.

The quartile of the respondents reporting the lowest level of Time Pressure had significantly more men than women in it. Persons in the quartiles with lowest Time Pressure and highest Time Use Satisfaction had significantly fewer children than those in the opposite quartiles. In this last respect, the results can be interpreted as suggesting that having children increases the demands made on one's time, which in turn increases the level of experienced Time Pressure. The fact that mothers even today carry the main responsibility for both childcare and the household is very clear from previous research and this has also been shown to cause high time pressure among mothers (Larsson, 2012; van der Lippe, 2007; Warren, 2010).

It is, furthermore, of interest to note that having children also correlated with lower Time Use Satisfaction. This could, judging from evidence available, be either because being together with children is often linked with a sense of low momentary well-being (Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004; Killingsworth & Gilbert, 2010) or due to the fact that having children often means having to cut back on the time one would otherwise spend on other, personally perhaps more immediately attractive activities.

Table 3. Characteristics of persons with particularly high and low time pressure and time use satisfaction

	Quartile with lowest time pressure	Quartile with highest time pressure	Quartile with highest time use satisfaction	Quartile with lowest time use satisfaction
Male (%) [†]	59***	41***	52 (n.s.)	48 (n.s.)
No. of children	0.48*	0.72*	0.49***	0.78***
Age (years)	51***	45***	48***	44***
Working hours (weekly)	29***	36***	30***	35***
Exercise (times per week)	3.0**	2.4**	3.0***	2.1***
Socializing with friends (times per week)	2.8**	1.4**	2.1***	1.3***

Notes: Mean figures. The table gives the results from ANOVA with a Tukey post hoc test.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

[†]To make interpretation easier, the numbers are altered so that the average share of both men and women is 50% (in reality, 45% of the respondents were men and 55% women). $N = 963$.

As regards the significance of age, one finding in particular merits attention. The average ages of those in the quartiles of the respondents with the lowest Time Pressure and the highest Time Use Satisfaction were roughly five years higher than those in the opposite quartiles. This finding is in line with previous research addressing the “paradox of aging”: that well-being typically increases with age despite many losses and challenges that simultaneously accrue (Mroczek & Kolarz, 1998). Young individuals have younger children and previous research have shown that this causes more time pressure than having older children (van der Lippe, 2007), but it has also been shown that a significant effect of age on time pressure remains also when one controls for the age of children (Larsson, 2012).

The quartiles with the lowest Time Pressure and the highest Time Use Satisfaction worked, on average, about six hours less per week than the opposite quartiles.⁴ That shorter working hours tend to be associated with lower perceived time pressure has been shown in previous research (Larsson, 2012; van der Lippe, 2007). Accordingly, this finding of ours could then be understood to suggest that shorter working hours leave one with more time for managing everything one has to accomplish outside of paid work, such as domestic work and caring for children or elderly.

Also those with the highest reported Time Use Satisfaction levels worked shorter hours on average than those with lower Time Use Satisfaction levels. Even though there are many (such as, perhaps, the readers of this article) who find work personally fulfilling and rewarding in itself, previous research has shown that, on average, work is one of the activities associated with the lowest levels of momentary well-being (Kahneman et al., 2004; Killingsworth & Gilbert, 2010). Moreover, working fewer hours per week also seems to be what many people desire when inquired about how they would want to change the way their lives are organized: 27% of the full-time workers in Sweden, for example, have reported preferring to work part time instead (Reynolds, 2004), with 26% of all those employed in the country having already opted to do so.⁵

Those in the quartiles of the respondents with the lowest Time Pressure and the highest Time Use Satisfaction exercised and socialized with friends more often than those in the opposite quartiles. One explanation for this could be that when one experiences high time pressure, the priorities are set anew, with the activities first to be omitted being exercising and socializing. In this situation, however, as it is widely known that these activities are associated with higher physical and psychological well-being in the long term, and even with high momentary well-being (Kahneman et al., 2004; Killingsworth & Gilbert, 2010), individuals might then nevertheless be more inclined to rate their Time Use Satisfaction to now be lower than it was before.

4. Concluding discussion

Despite the fact that the experience of time problems is known to be widespread in society today, no comprehensive, well-established methods to measure the subjective temporal dimensions behind this experience have been developed in the literature thus far. In this article, we have taken a first step in addressing this gap by proposing the concept of Subjective Temporal Well-being, referring to the combined experience of a low level of perceived time pressure and a high level of satisfaction with how one’s time is spent. While these two components of the concept represent distinctly different temporal dimensions (with Pearson’s r of 0.40), we maintain that scoring positively on both of them is necessary for the experience of a high level of Subjective Temporal Well-being. It seems unreasonable that persons experiencing low Time Pressure but expressing strong dissatisfaction with how their time is used could be claimed to demonstrate a high level of Subjective Temporal Well-being. Examples of such individuals would include unemployed workers who never feel a need to rush but also lack the economic resources and social networks they would need to have access to in order be able to engage in the kind of alternative activities they would like to pursue instead, with all that free, unhurried time on their hands. It also seems unreasonable that the perception of a high level of satisfaction with one’s time use combined with a high degree of time pressure would imply a high level of Subjective Temporal Well-being. An example of this latter situation might be a mother who, in between pursuing a career and attending to her family, still manages to find time for

exercising, meeting up with friends and so on, without quite being able to shake off her experience of intense, continuous time pressure.

This line of reasoning shows strong similarities with the arguments put forth in the work around the subjective well-being index (e.g. Diener et al., 1999). As Diener et al. (1999) have argued, a combination of certain emotions (an affective component) and satisfaction with one's life (a cognitive component) is required for any attempt to characterize individuals' quality of life. In keeping with this, our concept of Subjective Temporal Well-being encompasses both an affective (not feeling rushed) and a cognitive component (a sense of satisfaction with how one's time is actually used).

In a societal context where time-related problems are a major concern for increasingly many people we propose Subjective Temporal Well-being as a concept with a potential to provide a useful angle from which to capture key dimensions of people's everyday lives. Focusing on a specific aspect of life, like Subjective Temporal Well-being, can provide a more comprehensible and tangible approach than that provided by efforts to cover individuals' overall well-being.

A further advantage with focusing on individuals' Subjective Temporal Well-being instead of, say, their overall subjective well-being is that it addresses dimensions of individuals' everyday life that can be changed by active decisions, both at the individual and political level. As Lyubomirsky (2008), for instance, has claimed, up to 40% of the differences in individuals' overall well-being can be attributed to changeable intentional activities, with the rest, for the most part, reflecting the influence of genetic inheritance and early childhood experiences. Some of these intentional activities are directly related to time use. As Lyubomirsky notes, those who are happiest tend to spend much time with their family and friends, exercise regularly, and pursue lifelong goals and ambitions. However, temporal experiences are also impacted by political processes manifesting themselves through, for instance, family policy and urban planning.

One possible statistical application of Subjective Temporal Well-being measures is in connection with time use studies as carried out in many countries (see www.timeuse.org). In them, they can be used to extend the scope of the surveys carried out by including in them also questions about respondents' Subjective Temporal Well-being. By combining objective time use data with surveyed individuals' subjective temporal experiences, a far more comprehensive picture of their well-being in their everyday lives can be obtained.

Another possible statistical application of the concept could be to include it as a component in measurements of national progress. Even though there has been an awareness, since 1968 at the latest, that the concept of Gross Domestic Product (GDP) measures "everything except that which makes life worthwhile" (Robert F. Kennedy), no well-established measure for assessing national progress has been made available to this day. Noting the same, Costanza et al. (2014), have identified three categories of alternative measures to succeed the construct: adjusted economic measures, subjective measures of well-being, and weighted composite measures of several indicators. The last-mentioned consists of both objective and subjective indicators from different domains, in the manner of, for instance, OECD's Better Life Index (www.oecdbetterlifeindex.org), in which the health measures include not only life expectancy as an objective indicator but also self-reported health as a more subjective one. While some of these composite measures can also cover the time domain, they typically only assess objective time use, as, for instance, in the minutes-per-day of leisure time measure in the OECD index. For any efforts to include more subjective dimensions for the time domain in this type of composite measures, our definition and discussion of the concept of Subjective Temporal Well-being in this article can provide a useful point of departure.

Besides statistical applications, the concept of Subjective Temporal Well-being also lends itself to productive use in more purely academic research. In this article, we have conducted a first explorative empirical examination of differences in individual Temporal Well-being. Our bivariate analyses indicate that men and persons without children are overrepresented among those who

demonstrate the highest levels of Subjective Temporal Well-being. Less time spent in paid work and more time spent exercising and socializing with friends also correlate positively with higher levels of Subjective Temporal Well-being.

As appears from this article, Subjective Temporal Well-being provides a concept with the help of which, we may be well able to expand our understanding of the temporal dimensions affecting people's well-being in their everyday life. However, some important limitations apply to this first exploration of the Subjective temporal Well-being concept. The version used in this paper is based on a battery of questions with only three items (due to space constraints in the questionnaire). More work on scale development, including factor structure and construct validity, for both Time Pressure and Time Use Satisfaction are needed for more robust results. This paper also presents only a very simple empirical analysis based on bivariate correlations. Further empirical research is needed to provide an improved understanding of the causes and effects of varying levels of Subjective Temporal Well-being.

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Notes

1. The term temporal well-being has previously been used in theological contexts, as, e.g. in the expression “spiritual and temporal well-being,” in which it is basically synonymous with “worldly” or “secular”.
2. It cannot be excluded that this specific context have affected how the respondents answered the questions, but we see no obvious effects.
3. The division of the data-set into four exact subgroups (25%) was not possible due to the actual distribution of answers: the “quartiles” consist of between 20 and 30% of the respondents.
4. The median working hours per week in Sweden is 40. The reason why the averages here were all lower than that is that our figures also cover those not working at all at the time of this survey, such as those who were unemployed.
5. 2014, Statistics Sweden, www.scb.se, age group 20–64, agreed work time 1–34 h per week.

References

- Andersson, D., & Nässén, J. (2016). Should environmentalists be concerned about materialism? An analysis of attitudes, behaviours and greenhouse gas emissions. *Journal of Environmental Psychology*, 48, 1–11. <http://dx.doi.org/10.1016/j.jenvp.2016.08.002>
- Andersson, D., Nässén, J., Larsson, J., & Holmberg, J. (2014). Greenhouse gas emissions and subjective well-being: An analysis of Swedish households. *Ecological Economics*, 102, 75–82.

- Bittman, M. (2002). Social participation and family welfare: The money and time costs of leisure in Australia. *Social Policy & Administration*, 36, 408–425. <http://dx.doi.org/10.1111/spol.2002.36.issue-4>
- Burenstam Linder, S. (1970). *The harried leisure class*. New York, NY: Columbia Univ. press.
- Costanza, R., Kubiszewski, I., Giovannini, E., Lovins, H., McGlade, J., Pickett, K., ... Wilkinson, R. (2014). Development: Time to leave GDP behind. *Nature*, 505, 283–285. <http://dx.doi.org/10.1038/505283a>
- Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin*, 125, 276–302. <http://dx.doi.org/10.1037/0033-2909.125.2.276>
- Duxbury, L. E., Higgins, C. A., & Coghill, D. (2003). *Voices of Canadians: Seeking work-life balance*. Ottawa: Human Resources Development Canada, Labour Program.
- Eriksson, L., Rice, J. M., & Goodin, R. E. (2007). Temporal aspects of life satisfaction. *Social Indicators Research*, 80, 511–533. <http://dx.doi.org/10.1007/s11205-006-0005-z>
- Garhammer, M. (2002). Pace of life and enjoyment of life. *Journal of Happiness Studies*, 3, 217–256. <http://dx.doi.org/10.1023/A:1020676100938>
- Gärting, T., Krause, K., Gamble, A., & Hartig, T. (2014). Emotional well-being and time pressure. *PsyCh Journal*. doi:10.1002/pchj.52
- Goodin, R. E., Parpo, A., & Kangas, O. (2004). The temporal welfare state: The case of Finland. *Journal of Social Policy*, 33, 531–552. <http://dx.doi.org/10.1017/S0047279404007986>
- Gunthorpe, W., & Lyons, K. (2004). A predictive model of chronic time pressure in the Australian population: Implications for leisure research. *Leisure Sciences*, 26, 201–213. <http://dx.doi.org/10.1080/01490400490432127>
- Hochschild, A. R. (1997). *The time bind. When work becomes home and home becomes work*. New York, NY: Metropolitan Books.
- Kahneman, D., Krueger, A. B., Schkade, D. A., Schwarz, N., & Stone, A. A. (2004). A survey method for characterizing daily life experience: The day reconstruction method. *Science*, 306, 1776–1780. <http://dx.doi.org/10.1126/science.1103572>
- Killingsworth, M. A., & Gilbert, D. T. (2010). A wandering mind is an unhappy mind. *Science*, 330, 932. <http://dx.doi.org/10.1126/science.1192439>
- Krueger, A. B., Kahneman, D., Fischler, C., Schkade, D., Schwarz, N., & Stone, A. A. (2009). Time use and subjective well-being in France and the U.S. *Social Indicators Research*, 93, 7–18. <http://dx.doi.org/10.1007/s11205-008-9415-4>
- Larsson, J. (2012). *Studier i tidsmässig välfärd – med fokus på tidsstrategier och tidspolitik för barnfamiljer* [Studies in Temporal Welfare – focusing on Time Strategies and Time Politics for Families with Small Children] (0072-5099). Dept. of Sociology, University of Gothenburg, Gothenburg.

- Lyubomirsky, S. (2008). *The how of happiness: A scientific approach to getting the life you want*. New York, NY: Penguin Press.
- Mroczek, D. K., & Kolarz, C. M. (1998). The effect of age on positive and negative affect: a developmental perspective on happiness. *Journal of personality and social psychology*, 75, 1133–1149.
- Nowotny, H. (1994). *Time: the modern and postmodern experience*. Cambridge: Polity Press.
- Rastegary, H., & Landy, F. J. (1993). *The interactions among time urgency, uncertainty, and time pressure Time pressure and stress in human judgment and decision making* (pp. 217–239). New York, NY: Springer.
- Reynolds, J. (2004). When too much is not enough: Actual and preferred work hours in the United States and abroad. *Sociological Forum*, 19, 89–120.
<http://dx.doi.org/10.1023/B:SOFO.0000019649.59873.08>
- Robinson, J. P., & Godbey, G. (1997). *Time for life: The surprising ways Americans use their time*. University Park, PA: Pennsylvania State Univ. Press.
- Rojas, M. (2006). Life satisfaction and satisfaction in domains of life: is it a simple relationship? *Journal of Happiness Studies*, 7, 467–497. <http://dx.doi.org/10.1007/s10902-006-9009-2>
- Rosa, H. (2013). *Social acceleration*. New York, NY: Columbia University Press. <http://dx.doi.org/10.7312/rosa14834>
- Schlottz, W., Hellhammer, J., Schulz, P., & Stone, A. A. (2004). Perceived work overload and chronic worrying predict weekend–weekday differences in the cortisol awakening response. *Psychosomatic Medicine*, 66, 207–214.
<http://dx.doi.org/10.1097/01.psy.0000116715.78238.56>
- Southerton, D. (2003). Squeezing time. Allocating practices, coordinating networks and scheduling society. *Time & Society*, 12, 5–25.
- Statistics Sweden. (2014). *Income and tax statistics*. Retrieved from www.scb.se/he0110-en/
- Stiglitz, J. E., Sen, A., & Fitoussi, J.-P. (2009). *Report by the commission on the measurement of economic performance and social progress*. Paris: The Commission on the Measurement of Economic Performance and Social Progress.
- van der Lippe, T. (2007). Dutch workers and time pressure: Household and workplace characteristics. *Work, Employment & Society*, 21, 693–711.
<http://dx.doi.org/10.1177/0950017007082877>
- Warren, T. (2010). Work time. Leisure time. On women's temporal and economic well-being in Europe. *Community, Work & Family*, 13, 365–392.
<http://dx.doi.org/10.1080/13668801003765713>
- Widmer, P. S., Semmer, N. K., Kälin, W., Jacobshagen, N., & Meier, L. L. (2012). The ambivalence of challenge stressors: Time pressure associated with both negative and positive well-being. *Journal of Vocational Behavior*, 80, 422–433. <http://dx.doi.org/10.1016/j.jvb.2011.09.006>



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