Assessing the Ebb and Flow of Daily Life with an Accent on the Positive

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In our research we have embarked on the study of "the positive" by developing methodologies that we could use to chart stability and change in everyday life experiences. To do so, we needed to build a structure for assessment that could traverse a veritable ocean of experiences, be capable of sailing through both the currents and cross currents of social influence, and also stay afloat to record the sometimes violent upheavals in the patterns of engagement that occur on the open sea. The method should be able to record both the ebb and flow of daily life, and at the same time probe the waters for influences on behavior that are both still and deep.

A Brief History of Methods to Study Life as it is Lived

Two very different traditions in social science provided the initial structure to guide these efforts: the study of quality of life and the study of life stress. The examination of quality of life began in the 1960's with what has been commonly referred to as the Social Indicators movement (Bauer, 1966). Then, social scientists advocated the development of measures that would gauge the progress of our society toward key social goals just as economic indicators were thought to provide evidence of the fiscal strength of the nation. Broad conceptions of what constituted the good life were translated into measurable properties of society like educational attainment, time until reemployment following job loss, and percentage of population with health insurance coverage.

In some countries, most notably the highly managed societies of Eastern Europe, the interest in quality of life translated in part into studies of daily life routines through time-budget methods (Szalai, 1972). A representative sample of people would be asked to record on a notebook what they did each fifteen minutes or half hour of a 24- hour day. These data were then aggregated for social groups, communities, even nations yielding

estimates of average time spent in various family, leisure, and compensated work activities. Patterns of engagement in and disengagement from key social roles could be discerned from these data. These first diary methods provided a ledger from which social scientists could judge the quality of living in societies, and record progress toward social goals by repeating the survey in subsequent years. In this country, we have charted progress, or the lack thereof, in improving leisure time with measures such as hours spent by women and men in household chores and average time commuting to work using modified versions of these time-budgets.

There were two basic shortcomings of these methods for assessing quality of life. First, there were problems with the assumptions inherent in any behavioral index of quality. How can we be certain that a positive change in the index actually improves the quality of people's lives? To resolve these problems, a number of social indicator researchers proposed methods of assessing affective states and self-reports of satisfaction within life domains that identified levels of quality of life as perceived (Andrews& Withey, 1976; Bradburn, 1969; Campbell, Converse, & Rodgers, 1976). These measures of subjective states paved the way for the application of modern methods of assessment of affective states in studies of the "positive" in daily life.

The second shortcoming of the time-budget methods of assessing the good life was the problem of discerning patterns of stability and change within the person and distinguishing these patterns from the change and stability in the sample as a whole. Usually, time-budgets assessed social progress by repeated observations of the same population but not by reinterviewing the same people. This method is appropriate in the

study of society but not in the study of persons. Only by studying the same person repeatedly can we hope to estimate stability and change in a person's everyday life.

About the same time that social scientists were developing social indicators of quality of life, public health researchers sought to gain greater specificity in the assessment of social stress through the development of inventories of life stress events (Holmes & Rahe, 1967; Dohrenwend & Dohrenwend, 1974). The early inventories were rudimentary at best, but gave way to more comprehensive methods of identifying and scoring the stressfulness of major life events (Brown and Harris, 1989; Dohrenwend, Krasnoff, Askenasy, & Dohrenwend, 1978; Dohrenwend, Raphael, Schwartz, Stueve, & Skodol, 1993).

The measurement of stressful life events helped resolve one of the difficulties in the assessment of change. In contrast to assessments of time use, events, by definition, signified change. Items on the inventory such as death in the family, divorce, loss of job, retirement, and relocation all pointed to upheavals in everyday life routine. Provided the retrospective accounts of people were accurate, the researchers could estimate degree of change in a person's life through counts of these events, and relate them to other outcomes, most notably changes in health and well-being.

It took approximately a decade or so of this work for researchers to acknowledge that inventories of major life stressors had several shortcomings. Aside from the substantial problems of reliability in retrospective event reporting (Neisser, 1991), there was an increasing awareness that inventories of major life events missed many of the life experiences important to the person. By attending exclusively to major life stressors,

these inventories did not account for everyday life stressors (Kanner, Coyne, Shaefer, & Lazarus, 1981), and they failed to account for positive events.

To correct these insufficiencies, one of us (Zautra) along with other researchers developed assessments of everyday life events (Zautra, Guarnaccia, & Dohrenwend, 1986) and built these measures to assess positive and well as negative events in everyday life. Empirical studies revealed that positive event reports were independent of stressful events, by-and-large. Assessments of "the positive" thus added a new dimension to the study of everyday events. Further, these measures proved strong contributors to the prediction of well-being significantly beyond that provided in the inventories of stressful life events.

Apparent from the outset was the distinctive quality of measures of positive events. In an early review of the relationship between positive events and psychological well-being, we (Zautra & Reich, 1983) found parallel processes at work when examining the effects of events. Although respondents reporting more negative events often reported more distress when compared with those reporting few everyday stressors, those people who reported more positive events did not show lower scores on measures of negative affective states. The occurrence of positive events did show a distinctive relationship to measures of positive emotion, however. People who reported more positive events were significantly happier, reporting more positive emotion on measures of mood and affect than those respondents reporting few positive events. The development of measures of positive affect that were distinct from negative affects only served to strengthen the case for measurement of the positive in everyday events as a dimension of life independent of stress and distress.

The introduction of these parallel assessments of the "positive" along with the negative provides us with opportunities to understand the dynamics of daily life in ways that would not otherwise be possible. Essential to this exploration, however, are methods that can capture the flow of everyday life events. Indeed, only recently have methods of assessment and data analysis advanced to the point that researchers can assess, score and analyze data that are collected daily and even within days for many days. Time-series methods developed for the studies of single cases (e.g., Potter & Zautra, 1997) have now given way to methods of analysis that permit us to examine differences both between people and within persons. Of considerable significance is what these new methods provide in the way of information on the patterns of daily life. They can detect both the depth of individual differences through estimates of stability in each person's distinctive pattern of daily experience, but also they reveal the extent that unpredictable events arise to influence the quality of our lives[1].

Within-vs. Across-Person Relations: A Difference That Makes a Difference

To appreciate what a daily process paradigm can contribute to our understanding of emotional processes is to understand first the difference between an across-persons association and a within-person association. We, like many, have been tempted to draw within-person inferences from across-person associations. For example, in early cross-sectional studies of stressful life events, correlations between the number of events and affective disturbance were taken to mean that **when** a person experiences a stressful event, he or she is more likely to become distressed. But in truth, such correlations only allow us to infer that people **who** have many stressful events also report more distress. No inference can be made about the potential effects of events directly without observing people when they are under stress and also when they are not. An across-person

correlation, moreover, can depart markedly from a within-person correlation (Snijders & Bosker, 1999). We cannot emphasize this enough. Tennen and Affleck (1996) and Kenny, Kashy, & Bolger (1998) have illustrated that across-persons and within-person correlations can differ not only in magnitude, but also in direction, and that a statistically significant positive across-person association can emerge when not a single individual in the group shows a positive within-person association!

Consider, for example, the findings from a study of rheumatoid arthritis patients, who kept daily diaries of their desirable and undesirable events for 75 consecutive days (Tennen & Affleck, 1996). After aggregating the scores to generate mean levels of both types of events, a moderately high across-person correlation of .50 emerged, as participants who reported more desirable events also reported more undesirable events. The question addressed by this across-person correlation is whether people who experience more undesirable daily events also experience more desirable daily events. Quite a different question is "how are desirable and undesirable events patterned in an *individual's* life?" Is a day with more undesirable events also a day with more desirable events? The across-person analysis cannot answer this question. It requires calculation of a within-person measure of association. Not a single participant exhibited the statistically significant positive association between desirable and undesirable events that was found when the data were analyzed across persons. In fact, the mean within-person correlation was -.25, with a preponderance of significant <u>negative</u> correlations. Even many of those who reported a large number of both desirable and undesirable events showed an inverse relation when these events were examined on a within-person basis.

Other benefits of time-intensive idiographic studies have been advanced by us elsewhere (Affleck, Zautra, Tennen & Armeli, 1999; Tennen, Suls & Affleck, 1991) and by others (e.g., Larsen & Kasimatis, 1991; Brown & Moskowitz, 1998). They allow

investigators to capture proximal events and behaviors closer to their actual occurrence and to track changes in rapidly fluctuating processes such as emotional reactions closer to their moments of change. These studies also minimize recall error, including systematic error in which individuals who differ on measured or unmeasured variables provide differentially accurate data or use different cognitive heuristics to assist their recall (Neisser, 1991). Because these studies track psychological processes as they unfold, they offer unique opportunities to test the elegant process-oriented models of stress and emotion now in the literature and to narrow the gap between theory and research (Tennen, Affleck, Armeli, & Carney, 2000). Additional benefits of daily process studies include the ability to mitigate some forms of confounding by using informants as their own controls and to establish temporal precedence as a foundation for causal inference (Tennen & Affleck, 1996).

<div align="center">Study Description</div>

We illustrate these methods of assessment and analysis of positive aspects of everyday life with data we are collecting in a diary study of 93 men and women (73% female) with rheumatoid arthritis (RA) verified by medical records. This study was part of an ongoing multiyear project conducted by our research team, assessing a wide range of mental and physical health variables in a community-based sample of RA patients in the Phoenix, AZ metropolitan area. Our research team recruited participants through a variety of means including flyers placed in physicians' offices and other public locations, physicians passing along information to their patients, newspaper ads, senior citizens' groups, arthritis groups, and mass mailings to members of the Arthritis Foundation. We excluded participants involved in health-related litigation, participants with other autoimmune diseases (Juvenile Rheumatoid Arthritis, HIV, AIDS, Psoriatic Arthritis, and

Lupus), and participants reporting the current usage of a cyclical hormone replacement therapy. Participants were between the ages of 23 and 86 (M = 54.3, SD = 13.3). The majority was married (70%) and Caucasian (88%). The average income was roughly $40,000. Ninety-Eight percent completed high school, and 40% completed 4 years of college. Forty-three percent were employed.

In this study we made use of data from brief (10-15 minute) questionnaire diaries filled out nightly for 30 days. We required that participants mail in signed consent forms prior to being enrolled in the study and completing diaries. We arranged to compensate participants up to $90 for completing the diary set, depending on their level of compliance. Our diary manager phoned each participant before they began the diary protocol in order to guide them through a sample diary, instruct them to mail their diaries the morning after completing them, and to answer any questions. The diary manager also monitored compliance by checking the postmark date on each envelope, looking through each diary to make sure it was complete, and phoning participants if they were having difficulty following protocol. In total, participants provided 2713 of 2790 (93 × 30) possible person-days of diary data (97% complete).

Measures

Positive affect. Participants filled out nightly diaries that included the Positive and Negative Affect Schedule (Watson & Clark, 1999). They indicated the extent to which they had experienced each of 10 positive affects during that day on a 5-point scale (from 1, *very slightly or not at all*, to 5, *extremely*). The positive affect items were "interested," "excited," "strong," "enthusiastic," "proud," "alert," "inspired,"

"determined," "attentive," and "active." The mean across the 10 items provided the scores on positive affect (PA).

In order to examine these scores at the between- and within-person levels independently, we transformed the daily PA scores into mean scores and person-centered daily "change' scores. First, we computed a mean (between-person) score for each participant by averaging each participant's levels of PA across the 30 days. To obtain person-centered daily change scores (within-person), we then subtracted each participant's mean score from each of their daily observations, resulting in a score representing the participant's daily change in PA compared to their own 30-day average. In effect, a positive person-centered score represents a day of above average PA for that person, and a negative score represents a day of below average PA for that person. Due to the many observations obtained for each participant, we were able to estimate both within- and between-subject internal consistency reliability. In order to estimate within-person reliability, item values were transformed into z-scores representing deviations from each participant's own mean score (across the 30 days) on each item in the scale. The resulting z-scores (~30 for each participant for each item) were therefore independent of between-person differences in level and variability. The within-subject alpha was .86 for PA. For the estimation of the reliability of the scale across participants, we computed averages of each person's scores (at the item-level) across the 30 days, resulting in a mean score for each subject for each item. The between-subject alpha for PA was .95.

Negative affect. Participants were also queried regarding negative affect (NA) on a nightly basis using the Positive and Negative Affect Schedule (Watson & Clark, 1999).

Response format was the same as for PA. The NA items were "distressed," "upset," "nervous," "scared," "hostile," "irritable," "ashamed," "jittery," "afraid," and "guilty." The NA scores were computed in the same manner as described above for PA, yielding satisfactory internal consistency reliabilities. The within-subject alpha was .81 for NA, and the between-subject alpha was .92.

Positive and negative social events. In order to measure daily positive and negative social interactions, we included the Inventory of Small Life Events (ISLE) for older adults (Zautra, Guarnaccia, & Dohrenwend, 1986) in our diaries. We asked participants to provide frequency counts of the weekly occurrence of 44 events in all (26 positive, such as "played a sport, game, or cards with friends," and 18 negative, such as "criticized by friend/acquaintance") gathered from the four domains of the ISLE: (1) friends and acquaintances, (2) spouse or live-in partner, (3) family members, and (4) co-workers. Our diaries also included open-ended questions that queried participants about other life events, both positive and negative, that were not specifically mentioned in the ISLE. We computed total scores for positive and negative events by summing events across the four domains. We also computed both mean and person-centered scores of positive and negative interpersonal events using the same methodology described above for positive and negative affect. Event measures are crafted to sample distinct experiences, ruling out the use of internal consistency methods as a means of estimating the reliability of these indices.

Descriptive Characteristics of Positive and Negative Daily Events and Affects
 Daily Scores

Table 1 provides several statistics that characterize the distributions of the 2713 person-days of daily positive and negative affect and events. As Table 1 indicates, PA scores were higher and more variable than NA scores and more closely approximated a normal distribution than did NA scores. The distribution of NA scores was more negatively skewed (i.e., with a preponderance of values toward the low end of the scale) and leptokurtotic (i.e., with greater clustering of values around the peak of the distribution) than was the distribution of PA scores. Table 1 tells much the same story about the distributions of daily events: positive event scores were higher and more variable than negative event scores and negative event scores were more negatively skewed and leptokurtotic.

The variability in these four series can be decomposed into a between-person source of variance, i.e., the differences between persons in their mean levels, and a within-person source of variance, i.e., the differences within persons in the dispersion of the scores. Fitting a SAS Proc Mixed model (Singer, 2001), which allowed intercepts (mean levels) to vary randomly; both of these sources of variance were found to be statistically significant for all 4 daily series (See Table 1). Notably, a greater proportion of the total variance in PA was due to between-person differences (68%) than was the case for NA (48%). Similarly, but less dramatically, a greater proportion of the total variance in positive event scores was due to differences between persons (43%) than it was for negative event scores (32%). Thus, positive experiences exhibit greater stability day-to-day than negative experiences

To gain further insight into differences in the patterning of positive and negative daily experiences, additional descriptive analyses were performed at the between person

level using mean daily scores and at the within-person level using person-centered daily scores.

Mean Daily Scores

Table 2 presents descriptive statistics for PA and NA and events mean daily scores for the 93 participants. These portrayals echo those of the person-day scores. Mean levels of PA and events were higher and displayed more variation than did NA and negative mean scores, and their distributions were more normal than those of the mean NA and events scores. As was the case with the raw score distributions, mean NA and event scores were more compressed and skewed toward the low end of their respective ranges.

Following conventions introduced by Tukey (1977) for exploratory data analysis, we constructed box-and-whisker plots (not shown) to identify individuals who could be considered "outliers" in their reports of positive and negative events and affects. It is noteworthy that the distributions of mean PA and mean positive events contained no outlying individuals. However, five of the 93 subjects (5.4%) were identified as outliers because of their unusually high levels of NA and seven (7.5%) were identified as outliers because of their unusually high numbers of negative daily events. These scores identify people who have unusually stressful lives, and also when these times of unusually high turbulence occur. Such extremes were not present in the patterns of positive affective experiences for our sample.

Person-centered Daily Scores

As can be seen in Table 3, the distributions of the person-centered scores parallel those found with the mean scores. These include greater variability and approximation to

normality in both PA and positive events than in NA and negative events. The box-and-

whisker plots of PA and NA revealed a substantially higher number of outlying days for

NA than for PA. Notably, 9.2% of the days were identified as outliers, because they were

characterized by uncommonly high NA (relative to the person's mean level) whereas

only 1.5% of the days were outliers because of their uncommonly low level of PA. This

was echoed in the outlying days pattern for positive and negative events. Owing to the

more compressed range and negative skew of negative daily events, 6.3% of the days

were identified as outliers because of the relatively high number of negative events

reported on those days, compared with the 0.37% of the days that had relatively low

numbers of positive events. Interestingly, there were more than 5 times as many days

there were outliers because the participants reported more positive events than usual than

that were outliers because participants reported fewer positive events than usual. Of

interest for future research is whether this finding parallels the awareness of positive

emotions. Are we more observant of increases in our daily experience of **the positive**

than we are of decreases in positive experience? The data suggest that we are.

Autocorrelation

An autocorrelation pattern in daily reports would indicate that affects, events, or

both on one day are able to predict these experiences the next day. To evaluate

differences in the extent to which positive and negative experiences are auto correlated

from day to day, we used the SAS Proc Mixed procedure to compare a null model of the

person-centered daily report (containing no predictor) with a model in which the lagged

(previous day's) value was added as predictor. These analyses revealed significant

autocorrelation in all four daily series. After comparing each model's residual variance

before and after adding the lagged predictor, the effect was similar for PA (reduction in residual variance = 5.8%) and NA (reduction in residual variance = 5.7%). However, autocorrelation was a more prominent feature of negative events (reduction in residual variance = 3.7%) than it was for positive events (reduction in residual variance = 0.4%). Thus, changes in affect and negative events tend to carry over into the next day. Elevations in positive events, however, do not influence the next day's positive events.

<u>Relations between Positive and Negative Experiences</u>

We next examined the relations between PA and NA, between positive and negative events, and between these affects and events at both the between-person and within-person levels of analysis. We used SAS Proc Mixed procedures because they simultaneously model variances in the intercepts (means) and slopes (within-person relations). For these analyses, we set up the model so that intercepts were allowed to vary randomly, as were all within-person slopes except those that pertained to time-varying covariates. Day-level predictors were person-centered and the residuals were fit to a first-order autocorrelation pattern. Because we found that outlying persons or days were especially apparent for NA and negative events, we evaluated the effects of including or excluding outlying persons or days for these variables.

<u>Between Positive Affect and Negative Affect</u>. Table 4 presents the between-person and within-person relations of NA with PA and relations of negative events with positive events. Although the measures were clearly assessing different emotive states, at both the between- and within-person levels, PA was significantly and inversely correlated with NA, and remained so whether outliers were included or excluded in the analyses. The overlap registered as 7.8% of variance shared between measures of PA and NA

between-subjects reflecting a correlation of .28, and 6.4% variance shared within-persons in daily fluctuations of PA and NA, reflecting a correlation of .25. The extent of this inverse relationship varied between persons, and as we report later, also varied across days. That some people showed less covariation between PA and NA suggests that there are individual differences in the ability to make fine grained distinctions between emotions, one component of emotional complexity. This capacity to differentiate affective experiences may be a key to promoting emotion regulation (Feldman Barrett, Gross, Conner, & Benvenuto, 2001) and development of good interpersonal relationships (Kang & Shaver, in press).

Relations Between Positive Events and Negative Events.   Findings presented in Table 4 reveal a different kind of relation between positive and negative events. At the within-person level – in contrast to the inverse relation between PA and NA -- there was no association between positive and negative events. And at the between-person level, there was a positive association between positive and negative events (r = .37) -- in contrast to the inverse association between PA and NA. However, this association was not statistically significant after individuals with outlying mean negative event scores were omitted from the analyses. Thus, the measurement of positive events introduces a wholly independent assessment of daily life than is afforded us through the assessment of the daily stress of negative events. There can hardly be any clearer indication of the need for studies of **the positive** than findings like this one.

Between Positive Affect/Events and Negative Affect/Events. Two sets of multivariate analyses – one at the between person level and one at the within-person level – examined how positive and negative events combine to predict positive and NA. Table

5 indicates that NA was predicted by negative events, but not independently by positive events. On the other hand, PA was higher among those who had experienced both fewer negative events and more positive events. These findings remained significant even after excluding individuals with outlying mean scores for NA and negative events.

Table 6 presents the findings regarding these relations examined at the within-person level. Higher NA scores were reported on days having both a greater number of negative events and a lower number of positive events, although the latter association did not remain significant after days with outlying negative event occurrences were excluded. PA was higher on days with more positive events but was unaffected by the frequency of that day's negative events, whether or not outlying days were included. This finding stands in contrast to the results of the analysis of the same variables between persons for which negative events had a substantial association with lower PA. These data suggest an important difference in the meaning of assessments of people who have many versus few negative experiences and assessments of times when they have many versus few negative events. People who tend to have more stressful lives also tend to have lower PA, as well as more NA. In contrast, days when many negative experiences occur do not bring lower PA, per se. Processes other than the mere accumulation of events must be involved to diminish positive states for people with high levels of chronic stress from negative events. Personality features as well as changes in the structure of the relationship between events and affect over time may underlie these processes.

A Test and Extension of the Dynamic Model of Affect: Effects of positive and negative events on the link between positive and negative affect

Within person assessments allow us to test a process-oriented model that describes conditions that foster greater or lesser differentiation between PA and NA, termed the Dynamic Model of Affect (DMA). It builds on work examining the contextual determinants of information processing (e.g., Linville, 1985; 1987; Paulhus & Lim, 1994; Ursin & Olff, 1993). Like cognition, the experience of emotion always occurs in an environmental context. In safe and predictable situations, we are able to process information from multiple sources including emotional inputs to develop an adaptive response. We acquire information arising not only from negatively-valenced aspects of a situation, but also from its positively-valenced features. Positive and negative affective registers provide little overlapping information here. In times of low stress, then, we would expect positive and NA to be relatively uncorrelated.

During times of stress and uncertainty, the need to process information quickly takes precedence over any advantages that accrue from more differentiated evaluation of stimuli. We can no longer afford to expend our resources on complex, time-consuming processing of information demands. Rather our attention narrows and our judgments become more simplified and rapid, allowing us to quickly adopt behaviors that are necessary to survive the threatening situation. In such contexts, we preferentially process negative information at the expense of positive. According to the DMA, during times of stress, PA and NA collapse toward a simpler bipolar dimension reflected in a high inverse relationship between the two affect measures.

A multilevel random coefficient model examined the DMA prediction that stressful conditions acted to shrink affective space, resulting in more simplified affective experiencing. NA on a given day$_j$ for person$_i$ was examined as a function of that day's

person-centered PA score (PA) that day's person-centered negative event score (NEV), and the PA X negative event interaction (PA X NEV). That day's person-centered positive event score (PEV) was entered as a covariate. This produced the following multilevel equation.

$$NA_{ij} = \gamma_{00} + \gamma_{01}(PA) + \gamma_{10}(NEV) + \gamma_{11}(PA \times NEV) + \gamma_{02}(PEV) + u_{oj} + u_{1j} + r_{ij}.$$

A significant effect for the interaction term ($b = -.023$, $F(1, 2591) = 5.78$, $p < .05$) supported the hypothesis. Graphing this interaction revealed that the relation between positive and NA was more strongly negative on days with relatively more negative events.

In contrast to the collapse of affective complexity under stressful conditions, the DMA predicts that the experience of positive events should broaden the capacity for information processing, resulting in greater affective differentiation. A comparable multilevel model examined the effect of that day's positive events on the relation between that day's PA and NA, i.e., the significance of the PA X positive event interaction. That day's person-centered negative event score was entered as a covariate. The interaction term was significant ($b = .013$, $F(1,2591) = 4.49$, $p < .05$) and consistent with prediction. Graphing this interaction revealed that the relation between positive and NA was closer to zero on days with relatively more positive events. Thus individuals experienced greater affective complexity on days with more positive events, a pattern that highlights the potential of positive affective experiences temporarily to broaden peoples' emotional, cognitive, and/or behavioral repertoires (Fredrickson, 1998). Expanding our focus beyond consideration of NA and negative events to include study of the central role

of the positive engagements thus provides a fuller and more accurate rendering of the experiences of daily life.

Discussion

What do the daily process methods and findings we have described reveal about the nature and value of the positive in daily life? The overarching message is that a focus on both between- and within-person processes permits inclusion of the important and unique information provided by each. The assessment of both positive and negative dimensions of experiencing, and the inclusion of not only the affects but also interpersonal events adds to the richness of our understanding of everyday experience.

The intensive within-person assessments shed light on how the affects and interpersonal events ebb and flow over time within individuals. Levels of positive affect and events were higher and more variable day-to-day than were those for negative affect and events, suggesting that different factors may hold sway over our experience of the positive compared to the negative. We also examined the extent to which one day's experiences carried over to the next day. Changes in PA and NA on one day tended to be followed by like experiences on the next day to a similar, albeit relatively modest, degree. About 6% of the variance in one day's mood was explained by the previous day's mood for both positive and NA. In contrast, changes in negative but not positive events predicted event experiences the next day, reflecting that social strains tend to perpetuate themselves whereas positive social engagements do not.

The daily process paradigm also allowed us to explore the degree to which fluctuations in PA and NA relate to differences between individuals. More of the variation was attributable to differences between people for the positive than for the

negative. Between 40 and 70% of the variance for positive experiences, versus 30 to 50% for negative experiences, was accounted for by between person factors. Thus, who we are has a more pronounced impact on our experience of joys than on our experience of sorrows. Numerous potential differences between individuals may account for variation in affective experiences, but among likely candidates are those that bear on the capacity to regulate emotion (e.g., Gohm, 2003), including behavioral activation and inhibition (e.g., Gable, Reis, & Elliot, 2000), and neuroticism and extraversion (Watson & Clark, 1992). It is worth noting that despite the substantial between person effects, much variance within persons remained, suggesting that daily circumstances play an important role in influencing our moods.

The value of focusing on multiple levels of analysis for understanding affective processes is most clear in the pattern of findings relating PA and NA, which demonstrated that the associations between the affects varied both between individuals and within the same individual over time. Initial analyses revealed that positive and NA showed some overlap, such that individuals who reported high levels of NA also reported low levels of PA, and days with high NA were also characterized by low levels of PA. Yet it was only when we considered changes in day-to-day social events that the dynamic nature of the affect associations became apparent. Consistent with predictions derived from the DMA, the inverse relationship between PA and NA became more pronounced on days of high interpersonal stress, and less pronounced on days of high positive social engagement. These and earlier findings suggest shifts in the underlying structure of affective experiences, with a bidimensional structure prevailing during periods of ease,

and a unidimensional structure dominant during times of stress and uncertainty (e.g.,

Reich, Zautra, & Davis, 2003; Zautra, Smith, Affleck, & Tennen, 2001).

Several authors (Epstein, 1983; Larsen & Kasimatis, 1991; Tennen & Affleck,

1996) have advocated combining the best of the idiographic and nomothetic traditions in

a mixed design that is a hallmark of the daily process paradigm. This permits

investigators to determine whether the associations between daily events and emotions

relate to differences between individuals. In the data we have presented, for example, the

daily process paradigm allows us to ask whether individual difference factors moderate

the context-related shifts in affective space. Our previous work suggests that cognitive

simplicity and lack of mood clarity may be two factors that increase vulnerability to

affective simplification during times of stress (Reich, Zautra, & Potter, 2001; Zautra et

al., 2001), but other candidates, particularly those related to emotion regulation skills, are

certainly viable.

Here we have focused on assessment of the broad constructs of positive and

negative affects and small events assessed daily at the end of day. Other strategies that

differ in the focus, frequency, and timing of assessments may also be informative. For

example, Watson and his colleagues (1999) employed an elegant sampling strategy to

assess whether circadian influences differed for the experience of PA and NA by

assessing individuals' momentary experience of the affects once per day at <u>different time

points</u> throughout the day over 45 days. They found that circadian patterning of PA and

NA was quite distinct, such that NA showed little systematic variation and PA varied as a

function of time since rising. This example illustrates how the spacing of assessment is

dependent on the question being addressed. Multiple within day measurements, for

instance, may be useful in capturing more transitory processes than is possible with end-of-day daily reports.

In addition to evaluating experience of general PA and NA and events as we have done, it may be enlightening to evaluate more refined experiences of emotions. For instance, Feldman Barrett and her colleagues (2001) employed within person assessment over time to examine affective differentiation not between but within PA and NA. They were interested in the extent to which individuals were able to make distinctions within their positive and negative emotional experiences, and found that negative but not positive affective differentiation was related to more frequent negative emotion regulation. These findings point to the potential value of including more nuanced assessment of these aspects of affective experiencing.

Being able to muster and maintain positive resources in the face of life's difficulties may be one key to well-being. Our focus here has been on understanding affective experiences in the context of small daily interpersonal events, but of course, monumental events also inevitably occur. A daily process approach may provide a finer understanding of how positive emotions influence recovery from trauma (e.g., Fredrickson, Tugade, Waugh, & Larkin, 2003) and loss (e.g., Tedlie-Moskowitz, Folkman, & Acree, 2003), and offer insights into salient targets in prevention and intervention efforts. Our findings with regard to small daily events, for example, suggest the value of targeting both negative and positive mood, and of scheduling frequent positive events, given that positive mood and events do not carry over from day to day.

Our work also suggests that timing plays a key role in these processes of adaptation. We suspect that the narrowing of attention during acute episodes of stress is

highly adaptive. Focused attention allows for swifter and a more uniform response to potential threat. Indeed the value of positive affective conditions to deter negative states is enhanced during stressful times. However, we also surmise that following the immediate stress response should be a recovery of depth and scope of our attention to affective states, both our own and of those in our social world. Emotional resilience then is manifested as a flexible capacity to shift between focus and extension across a two-dimensional plane. The broader and more complex the possibilities, the more nuanced and rich is the information we have to help us govern our emotional lives. Successful adaptation depends on both awareness of complexity and also responsiveness to the changing demands of the daily environment.

<u>Summary</u>.

In this paper we have shown the development of one approach to the study of the "positive". Our methods evolved from earlier approaches concerned with estimating the quality and the stresses of life. Building on both the promise and the shortcomings of those established practices, we were led inexorably to study positive aspects of everyday life. To not do so would have been to ignore essential ingredients of the good life that could not be predicted from extensive knowledge of life's difficulties. Our careful assessment of the positive in events and emotion allowed us to observe just how different our experiences of the positive are from experiences of the negative. The findings from our analyses suggest that two parallel processes infuse our consciousness with emotion and purpose: One that is positive, guiding our approach with promise and hope, and another that is negative, informing us about risk of harm. We can chart their influence on people's lives through careful observations of the ebb and flow of life events and

emotion. These processes are embedded within the social fabric as well. Culture and social status, as well as personality, shape our opportunities and also enforce constraints on participation in everyday life. The forces of individual differences in social station and temperament, as powerful as they are, should not overshadow the influence of the dynamic influences of everyday life events. We have shown that it is as important to chart meaningful changes within a person's life, as it is to characterize differences between persons and social groups. New methods allow us to look over time within the individual, and they reveal important dynamic relationships between positive and negative affective experiences that would have been neglected without careful attention to the assessment of both positive and negative emotional processes as they unfold over time. More work is needed to be sure in mapping the domains of the positive in everyday life, including greater attention to cognitive processes that influence expectations for and perceptions of benefit and/or threat from life events. We hope that our attention to detail in the measurement of how events unfold in everyday life will provide some guidance for future endeavors seeking to quantify these aspects of "the positive" within psychology.

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Table 1

Distributional Characteristics of Daily Positive and Negative Affect and Event Scores
(N = 2713 Person-days)

| | Affect | | Events | |
	Positive	Negative	Positive	Negative
Mean	2.792	1.332	4.991	.883
Median	2.800	1.100	5.000	.000
S.D.	.890	.516	2.963	1.326
Skewness	.122	2.373	.757	2.007
Kurtosis	.094	6.283	.883	4.907
Proportion Between-Person Variance	.68 *	.48 *	.43 *	.32 *
Proportion Within-Person Variance	.32 *	.52 *	.57 *	.68 *

* p < .05

Table 2

Distributional Characteristics of 30-day Averages for Positive and Negative Affect and
Event Scores
(N = 93 Persons)

	Average Affect		Average Events	
	Positive	Negative	Positive	Negative
Mean	2.786	1.338	5.000	.887
Median	2.765	1.220	4.800	.706
S.D.	.703	.365	1.984	.783
Skewness	.242	1.961	.143	1.440
Kurtosis	-.206	4.650	-.030	1.678

Table 3

Distributional Characteristics of Person-Centered Daily Changes in Positive and Negative
Affect and Event Scores
(N = 2713 Person-Days)

	Change in Affect		Change in Events	
	Positive	Negative	Positive	Negative
Mean	.000	.000	.000	.000
Median	.017	-.040	-.133	-.200
S.D.	.560	.369	2.216	1.076
Skewness	-.146	1.667	.642	1.363
Kurtosis	.792	6.421	1.571	4.220

Table 4

Multilevel Random Coefficient Analyses of Between-Person and Within-Person
Relations between Negative Affect and Positive Affect and between
Negative Events and Positive Events
(N = 2713 Person-Days)

| | Between-Person | | Within-Person | |
	b	F	b	F
Negative Affect and	-.569	8.73 ***	-.417	42.49 ***
Positive Affect	(-.653)	(5.89) *	(-.415)	(45.20) ***
Negative Events and	.943	14.51 ***	-.033	.35
Positive Events	(-1.163)	(.46)	(-.017)	(.04)

*** p < .001   * p < .05

Note: Numbers in parentheses are from analyses that exclude outlying persons for
negative affect or events mean scores or outlying days for person-centered negative affect
or event scores.

Table 5

Multivariate Multilevel Random Coefficient Analyses of Between-Person Relations of
Average Negative and Positive Event Scores with Negative and Positive Affect Scores
(N = 93 Persons)

	Average Negative Affect[a]		Average Positive Affect[b]	
	b	F	b	F
Average Negative				
Events	.097	17.57 ***	-.307	11.09 **
	(.238)	(26.28) ***	(-.344)	(13.24) ***
Average Positive Events				
	-.019	1.04	.140	14.79 ***
	(-.014)	(2.82)	(.142)	(14.50) ***

Note: Numbers in parentheses are from analyses that exclude outlying persons for
negative affect or events mean scores

*** p < .001   ** p < .01   * p < .05

[a] Adjusting for Positive Affect
[b] Adjusting for Negative Affect

Table 6

Multivariate Multilevel Random Coefficient Analyses of Within-Person Relations of
Change in Negative and Positive Events with Change in Negative and Positive Affect
Scores
(N = 2713 Person-Days)

	Change in Negative Affect[a]		Change in Positive Affect[b]	
	b	F	b	F
Change in				
Negative Events	.094	106.16 ***	-.001	.02
	(.044)	(139.06) ***	(.001)	(.01)
Change in				
Positive Events	-.006	3.93 *	.065	118.96 ***
	(-.001)	(.42)	(.057)	(150.55) ***

Note: Numbers in parentheses are from analyses that exclude outlying days for person-centered negative affect or events mean scores

*** p < .001   ** p < .01   * p < .05

[a] Adjusting for Positive Affect
[b] Adjusting for Negative Affect

Footnotes

[1] Detailed discussions of the methodological and statistical options now available for such studies have been applied to emotional processes in personality (e.g., Nezlek, 2001), health (e.g., Schwartz & Stone, 1998), clinical (e.g., Affleck, Zautra, Tennen, & Armeli, 1999), and social phenomena (e.g., Kenny, Kashy, & Bolger, 1997).