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Resilience and Vulnerability to Daily Stressors Assessed via Diary Methods

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ABSTRACT—*Stressors encountered in daily life, such as family arguments or work deadlines, may play an important role in individual health and well-being. This article presents a framework for understanding how characteristics of individuals and their environments limit or increase exposure and reactivity to daily stressors. Research on daily stressors has benefited from diary methods that obtain repeated measurements from individuals during their daily lives. These methods improve ecological validity, reduce memory distortions, and permit the assessment of within-person processes. Findings from the National Study of Daily Experiences, which used a telephone-diary design, highlight how people's age, gender, and education and the presence or absence of chronic stressors in their lives predict their exposure and reactivity to daily stressors. Finally, future directions for research designs that combine laboratory-based assessment of stress physiology with daily-diary methods are discussed.*

KEYWORDS—*daily hassles; diary designs; well-being*

> Any idiot can handle a crisis—it's this day-to-day living that wears you out.
>
> —Anton Chekhov

Anyone who has recently experienced a crisis such as job loss, marital disruption, or the death of a loved one would certainly disagree with Chekhov's contention. Indeed, these major life stressors require significant adjustment on the part of the individual and adversely affect psychological and physical health (Brown & Harris, 1989). Major life events, however, are relatively rare, and thus their cumulative effect on health and well-being may not be as great as that of minor yet frequent stressors, such as work deadlines and family arguments (Lazarus, 1999; Zautra, 2003). Daily stressors are defined as routine challenges of day-to-day living, such as the everyday concerns of work, caring for other people, and commuting between work and home. They may also refer to more unexpected small occurrences—such as arguments with children, unexpected work deadlines, and malfunctioning computers—that disrupt daily life.

Tangible, albeit minor, interruptions like these may have a more immediate effect on well-being than major life events. Major life events may be associated with prolonged physiological arousal, whereas daily hassles may be associated with spikes in arousal or psychological distress confined to a single day. Yet minor daily stressors affect well-being not only by having separate, immediate, and direct effects on emotional and physical functioning, but also by piling up over a series of days to create persistent irritations, frustrations, and overloads that may result in more serious stress reactions such as anxiety and depression (Lazarus, 1999; Zautra, 2003).

VULNERABILITY AND RESILIENCE TO DAILY STRESSORS

Some stressors are unhealthier than other stressors, and some individuals are more prone to the effects of stressors than other individuals. Recent improvements in the measurement of daily stressors and in study design have allowed researchers to address (a) how different types of stressors and personal meanings attached to these stressors affect well-being and (b) how sociodemographic factors and personal characteristics account for group and individual differences in daily-stress processes. Figure 1 provides a model for these two areas of inquiry.

The right side of the figure represents daily-stress processes that occur within the individual. To understand these processes,

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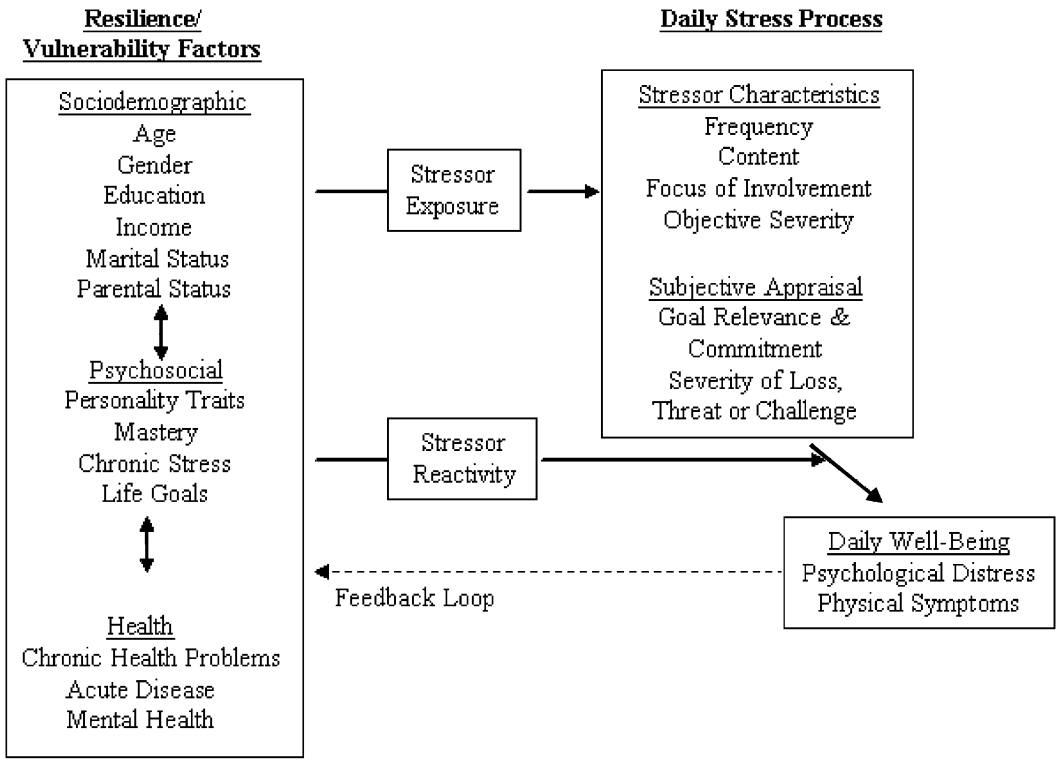

Fig. 1. Model showing how individual resilience or vulnerability factors affect daily-stress processes and well-being. Such factors include socioeconomic, psychosocial, and health characteristics; these influence the likelihood of being exposed to different kinds of stressors and the way individuals appraise stressors. Objective stressor characteristics and stressors' subjective appraisal by individuals in turn influences individuals' psychological and physical well-being. In addition to influencing stressor exposure, resilience or vulnerability factors influence individuals' reactivity to stressors—that is, their likelihood of reacting emotionally or physically. The feedback loop indicates that aspects of stressors and well-being will have subsequent effects on the vulnerability and resilience factors.

one must consider both the objective characteristics of daily stressors and individuals' subjective appraisal of stressors. Objective characteristics of daily stressors include their frequency, type (e.g., interpersonal tension, being overloaded or overwhelmed at work), focus of involvement (e.g., whether the stressor involves other persons, such as a sick family member), and objective severity (e.g., degree of unpleasantness and disruption for an average person). Individuals appraise stressors in terms of their perceived severity and in terms of how much they are perceived as disrupting daily goals and commitments. Both objective and subjective components of daily stressors affect daily well-being (Cohen, Kessler, & Gordon, 1997). The objective characteristics of a stressor may play an important role in how that stressor is appraised, which in turn may influence how much distress it causes. Integrating the objective characteristics of stressors with their subjective appraisal allows researchers to investigate whether different kinds of daily stressors elicit different appraisal processes and affect well-being differently.

The left side of Figure 1 represents sociodemographic, psychosocial, and health factors that contribute to individuals' resilience or vulnerability to stress. Resilience and vulnerability factors affect individuals' *exposure* and *reactivity* to daily stressors and, thereby, their daily well-being. Exposure is the likelihood that an individual will experience a daily stressor, given his or her resilience or vulnerability factors. Although daily stressors may be unpredictable, more often they arise out of the routine circumstances of everyday life. The stressor-exposure path illustrates that an individual's sociodemographic, psychosocial, and health characteristics are likely to play a role in determining what kinds of stressors that individual experiences and how he or she appraises them (right side of Fig. 1). Reactivity is the likelihood that an individual will react emotionally or physically to daily stressors and depends on the individual's resilience or vulnerability (Bolger & Zuckerman, 1995). The stressor-reactivity path illustrates that sociodemographic, psychosocial, and health factors modify how daily stressors affect daily well-being. Individuals' personal resources (e.g., their education, income, feelings of mastery and control over their environment, and physical health) and environmental resources (e.g., social support) affect how they can cope with daily experiences (Lazarus, 1999). Finally, the feedback-loop path (dotted arrow from the right to the left of the figure) shows how aspects of stressors and well-being will have subsequent effects on the resilience and vulnerability factors.

DAILY-DIARY METHODOLOGY

The understanding of daily stressors has benefited from the development of diary methods that obtain repeated measurements from individuals during their daily lives. In this method, individuals report the stressors they experienced over the course of several days, as well as their behaviors, physical symptoms, and emotional states on these days. The use of paper-and-pencil diaries has been criticized because some participants may not complete their entries at scheduled times (Stone, Shiffman, Schwartz, Broderick, & Hufford, 2002). However, recent diary methods in which participants respond over the telephone, with personal digital assistants, and on Internet Web pages provide more control over compliance and make it possible to obtain more in-depth information by allowing subjects to skip irrelevant questions and go into greater detail on those that are more relevant to them, for instance by describing experiences in their own words. Diary methods have a number of virtues (Bolger, Davis, & Rafaeli, 2003). By obtaining information about individuals' actual daily stressors over short-term intervals, daily diaries circumvent concerns about ecological validity (applicability to real life) that constrain findings from laboratory research. Further, diary methods alleviate memory distortions that can occur in more traditional questionnaire and interview methods that require respondents to recall experiences over longer time frames.

Perhaps the most valuable feature of diary methods is that they allow assessment of within-person processes. This feature entails a shift from assessing mean levels of stressors and well-being in a group of individuals to charting the day-to-day fluctuations in stress and well-being within an individual, as well as to identifying predictors, correlates, and consequences of these fluctuations (Reis & Gamble, 2000).

Stress is a process that occurs within the individual, and research designs need to reflect this fact. For example, instead of asking whether individuals who encounter many stressors at work experience more distress than individuals with less stressful jobs, a researcher can ask whether a worker experiences more distress on days when he or she has too many deadlines (or is reprimanded) than on days when work has been stress free. This within-person approach allows the researcher to rule out personality and environmental variables that are stable over time as explanations for the relationship between stressors and well-being. In addition, the intensive longitudinal aspect of this design permits researchers to examine how stressors are associated with changes in a person's well-being from one day to the next. By establishing within-person, through-time associations between daily stressors and well-being, researchers can more precisely establish the short-term effects of concrete daily experiences (Bolger et al., 2003; Larson & Almeida, 1999).

EMPIRICAL FINDINGS FROM THE NATIONAL STUDY OF DAILY EXPERIENCES

A recent project called the National Study of Daily Experiences (NSDE) is aimed to investigate the sources of vulnerability and resilience to daily stressors. The NSDE is a telephone-diary study of a U.S. national sample of 1,483 adults ranging in age from 25 to 74 years. Interviews occurred over eight consecutive nights, resulting in 11,578 days of information. Although past research advanced the understanding of daily-stress processes, there are important limitations in these studies that are overcome in the NSDE. First, previous diary studies of daily stressors relied on small and often unrepresentative samples that limited the generalizability of findings. In contrast, the NSDE data come from a representative subsample of adults surveyed in a nationwide study on Midlife in the United States (MIDUS). Second, previous studies of individual differences in vulnerability to stress have typically examined only one source of variability, such as neuroticism (i.e., whether a person is dispositionally anxious). The NSDE, in contrast, uses data on a wide array of personality variables and sociodemographic characteristics collected in the MIDUS survey. Third, previous studies typically have relied on self-administered checklists of daily stressors that only indicate whether or not a given stressor has occurred. The NSDE uses a semistructured telephone interview to measure several aspects of daily stressors, including their objective characteristics as rated by expert coders (e.g., content, severity) and their subjective appraisals by study participants.

Prevalence of Daily Stressors

Respondents reported experiencing on average at least one stressor on 40% of the study days and multiple stressors on 10% of the study days (Almeida, Wethington, & Kessler, 2002). Table 1 provides a breakdown by various stressor categories. The most common stressors for both men and women were interpersonal arguments and tensions, which accounted for half of all the stressors. Gender differences were also evident. Women were more likely than men to report network stressors—stressors involving their network of relatives or close friends—whereas men were more likely than women to report stressors at work or at school. On average, the respondents subjectively rated stressors as having medium severity, whereas objective coders rated the stressors as having low severity. It is interesting that objective and subjective severity were only moderately correlated ($r = .36$). As appraised by respondents, daily stressors more commonly posed a threat to respondents' daily routines than to other domains of their lives (e.g., their finances, health, and safety). The threat dimensions refer to stressful implications for the respondent. Approximately 30% of the reported stressors involved some sort of loss (e.g., of money), nearly 37% posed danger (e.g., potential for future loss), and 27% were

TABLE 1

Results from the National Study of Daily Experiences: Measures of Stressors

	Total	Men	Women
	(N = 1,031)	(n = 469)	(n = 562)
Stressor content (% of events)[a]			
Interpersonal tensions	50.0%	49.1%	50.3%
Work or school	13.2	15.7	11.2*
Home	8.2	8.0	8.3
Health care	2.2	1.6	2.7
Network[b]	15.4	12.5	17.8*
Miscellaneous	3.5	4.4	2.7
Type of threat posed by stressor (% of events)			
Loss	29.7	29.9	29.5
Danger	36.2	35.7	36.6
Disappointment	4.2	4.0	4.4
Frustration	27.4	28.3	26.6
Stressor severity (mean)[c]			
Objective assessment	1.8	1.7	1.9
Subjective assessment	2.7	2.5	2.9*
Domain of life potentially disrupted (mean)[d]			
Daily routine	2.3	2.3	2.3
Financial situation	1.3	1.4	1.2*
Way feel about self	1.5	1.4	1.5
Way others feel about you	1.4	1.3	1.4*
Physical health or safety	1.3	1.3	1.3
Health/well-being of someone you care about	1.5	1.5	1.5
Plans for the future	1.4	1.4	1.3

[a]Seven percent of events could not be placed into these content classifications.
[b]Events that happen to other people.
[c]Range: 1–4 (not at all stressful to very stressful).
[d]Range: 1–4 (no risk to a lot of risk).
*Asterisks indicate a significant gender difference, $p < .01$.

frustrations or events over which the respondent felt he or she had no control.

Daily stressors also had implications for well-being. Respondents were more likely to report psychological distress and physical symptoms on days when they experienced stressors than on stress-free days. Certain types of daily stressors, such as interpersonal tensions and network stressors, were more predictive of psychological distress and physical symptoms than other types of stressors. Furthermore, severe stressors that disrupted daily routines or posed a risk to physical health and self-concept were particularly distressing.

Group and Individual Differences in Daily Stressors

As previously mentioned, demographic and psychological characteristics affect how resilient or vulnerable individuals are to daily stressors (see Fig. 1). Horn and I initially investigated this issue by assessing age differences in exposure and reactivity to daily stressors (Almeida & Horn, 2004). Young (25–39 years) and middle-aged (40–59 years) individuals reported a greater daily frequency of stressors than did older individuals (60–74 years). Compared with older adults, younger and midlife adults also perceived their stressors as more severe and as more likely to affect how other people felt about them. Overloads (i.e., having too little time or other resources) and demands (i.e., having too much to do) were a greater source of daily stressors for younger and midlife adults than for older adults, although the focus of the demands tended to differ by gender. Younger men's daily stressors were more likely than those of older men to revolve around demands and overloads as well as interactions with coworkers. Women in midlife reported the same percentage of overloads as younger women but had a greater proportion of network stressors. Although overloads were not a common type of stressor for older adults, these respondents had the greatest proportion of network stressors (stressors that happen to other people) and spouse-related stressors.

Socioeconomic factors may also help or hinder individuals in facing daily stressors. Consistent with research on socioeconomic inequalities in health, our analyses indicated that, on any given day, better-educated adults reported fewer physical symptoms and less psychological distress than less-educated adults (Grzywacz, Almeida, Neupert, & Ettner, 2004). In contrast to studies of life-event stressors, this study found that college-educated individuals reported more daily stressors than those with no more than high-school education. However, college-educated respondents were less reactive to stressors, which indicates that socioeconomic differentials in daily health could be attributed to differential reactivity to stressors rather than to differential exposure to stressors.

Finally, it is important to acknowledge that ongoing difficulties in a person's life (e.g., caring for a sick spouse, poor working conditions) not only may expose him or her to stressors, but also may increase his or her reactivity to daily stressors by depleting resources. Participants who experienced chronic stressors were more likely than those who did not to report psychological distress on days when they experienced daily stressors (Serido, Almeida, & Wethington, 2004). For women, the interaction of home hassles and chronic stressors was significant; for men, it was the interaction of work hassles and chronic stressors that was significant.

FUTURE DIRECTIONS: PHYSIOLOGICAL INDICATORS OF WELL-BEING

Most research on resilience and vulnerability to daily stressors has relied on self-reported well-being. Results have had to be qualified by discussions of possible biases in study participants' responses and questions concerning the validity of self-reported well-being measures. Thus, questions regarding the direct relation between daily stressors and physiological functioning remain. One promising avenue for future research concerns *allostatic load*, the biological cost of adapting to stresssors. Allostatic load is commonly measured by indicators of the body's response to physiological dysregulation—responses

such as high cholesterol levels or lowered blood-clotting ability—and has been found to be predictive of decline in physical health (McEwen, 1998). Ironically, researchers have conceptualized allostatic load as physical vulnerability caused by the body having to adjust repeatedly to stressors, yet few studies have examined allostatic load in conjunction with individuals' daily accounts of stressors. The combination of daily-stressor data from diaries and data from laboratory tests of physiological reactivity would provide an opportunity to examine how daily stressors map onto physiological indicators of allostatic load.

In conclusion, the study of daily stress provides a unique window into the ebb and flow of day-to-day frustrations and irritations that are often missed by research on major life events. The focus on naturally occurring minor stressors assessed on a daily basis offers an exciting opportunity to understand how people adapt to the challenges of life. Adaptation occurs within an individual, so understanding adaptation requires consideration both of stressors themselves and of the persons they affect. Because daily stressors are real-life issues that require immediate attention, daily-diary study of stressors can provide the micro-level data needed to understand the immediate relationships between stressors and how individuals respond to and interpret them. It is true that day-to day living can wear you out; however certain days are better than others, and certain people are better equipped to handle stressors than other people are.

Recommended Reading

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