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Preface

All research methods are harder than they look—even the simplest methods have small details to master and big potholes to avoid. Nevertheless, some kinds of research have higher barriers to entry than others: Aspiring researchers need more skills, training, and knowledge to get started. Methods with low barriers to entry, such as online surveys and simple experiments with convenience samples of adults, are what we teach to undergraduates and see at student-only poster sessions at regional conferences. Methods with high barriers to entry, such as functional neuroimaging, clinical trials, meta-analyses, and computational modeling, take years of graduate and postdoctoral training to learn.

Daily life methods, the topic of this book, fall somewhere in between. In our years of conducting, presenting, and teaching daily diary and experience sampling methods, we've found that newcomers are often unnecessarily intimidated or dangerously overconfident. Some researchers see these methods as more intricate and delicate than they are, so they're reluctant to take the leap. Although a daily diary study is more complex than a one-shot online survey, it isn't rocket surgery. The more serious problem, we've found, is overconfidence. Researchers see a cool experience-sampling talk at a conference, get excited to try it, and think, "How hard can it be? I already know how to give surveys—it's just giving more of them." The rise of sophisticated smartphone applications and online platforms has fueled an impulsive, "There's an app for that" mindset that ends in vexation and calamity.

Our aim in this book is to teach you how to do daily life research: how to think about the method, design a study, develop suitable assessments, collect data, and disseminate your findings. We assume a background in the basics of research methods but not much more. We intend the book to be suitable for advanced undergraduates working as research assistants, graduate students getting started with their own projects, postdocs entering a daily-life lab, and established researchers wanting to add some tools to the toolbox.

Our goal in this book is to walk researchers through the process of designing and conducting a daily life project. Our focus is on the classic, prototypical kinds of projects—studies that sample at least once a day and collect self-report data. On the design side, we emphasize daily diaries and within-day experience sampling. These are the most common designs and the building blocks of more intricate projects. On the measurement side, we emphasize self-report items—daily life surveys—that participants complete in their daily environments. Self-report surveys are both the most common kind of daily life assessment and the best place for new researchers to start.

If this book has a cornerstone message, it is that your first project should be straightforward and focused on the fundamentals. The world of daily life methods is innovative and ever expanding, and we realize that it's tempting to jump into a complicated study using the latest wearable devices and ambulatory sensors. But just as we walk before we run, we conduct a basic self-report study before we wire participants with limb accelerometers, mobile eye trackers, and impedance cardiographs that send electricity through thoracic electrodes. Once mastered, the fundamentals are easily extended to advanced designs and high-tech assessment tools. Do a simple first study, work out the kinks, and scale up from there.

As with all research methods, daily life methods have fundamental principles of design, sampling, and assessment that must be understood before diving into data collection. Throughout the book, we discuss many topics that might seem glaringly obvious or needlessly subtle, but our goal is to reveal the many “unknown unknowns” of daily life research. Our hope is that by this book's end, readers will think at least once, “Now that's a pothole I would've stepped in.”

In the following chapters, we'll walk through the life cycle of a daily life project, from conception to publication. Chapter 1 introduces the animating features of daily life research: real-time, repeated assessment of people in their natural environments. Chapter 2 describes how to create a *sampling design*: your plan for when and how often to assess people. Daily life work

has developed a handful of core sampling designs that suit different kinds of research questions. Once you have your design, you need to develop assessments. Items that work in one-shot surveys rarely work as-is when used dozens of times to describe momentary events and experiences. Chapter 3 describes how to write good items for intensive, real-world use.

To launch your project, you need a system for signaling participants and collecting data. Chapter 4 describes how to select a system by describing 10 questions to ask about your project, participants, and resources. Chapter 5 turns to the nuts and bolts of collecting data, with a focus on good methodological practices that yield higher response rates and cleaner data. Once data collection ends, you will experience the feral beauty of raw daily life data. Chapter 6 provides advice for cleaning and processing the data to prepare it for analysis, and Chapter 7 describes quirky analytic issues to be aware of when planning your statistical analyses. Many readers already have the tools and skills to model daily life data, but we think many others should consider bringing in a statistical collaborator. Finally, when the dust settles, it will be time to share your findings with the world. Chapter 8 concludes our book by discussing good practices for presenting daily life projects as posters and talks and for developing manuscripts to submit to peer-reviewed journals.

1 WHAT ARE DAILY LIFE METHODS?

What are you doing right now? You needn't be a mind-reading psychologist to make a good guess—you're reading our book, presumably—but where are you? Who, if anyone, is around? What are you thinking about? What's your mood like? What has happened so far today? And what do you expect to do later? (Finish reading our book, we hope.)

A large community of researchers has a passionate and nosy interest in what people are doing in their ordinary environments in their everyday lives. Some researchers are interested in mundane, ordinary events—the ones that make up most of our lives—for their own sake. Others study real-world experiences because that's where you find clinical symptoms and problem behaviors—where people experience pain, crave nicotine, drink to excess, sleep poorly, think about hurting themselves, and argue with their partners. The real world is also where you'll find the brighter side of behavior—where people feel hopeful, use their imagination, achieve their goals, enjoy the great outdoors, create new things, and connect with people they care about.

Once a niche side of psychology, the study of daily life has developed into a major research tradition and transformed translational fields like clinical

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Researching Daily Life: A Guide to Experience Sampling and Daily Diary Methods,
by P. J. Silvia and K. N. Cotter

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psychology, health psychology, and behavioral medicine (Conner et al., 2009; Robbins & Kubiak, 2014; Trull & Ebner-Priemer, 2013; Wheeler & Reis, 1991). In this chapter, we describe the fundamentals of daily life methods: their defining features, core assumptions, and typical applications. We conclude by contrasting them with familiar methods, like experimental, survey, and longitudinal methods, to sharpen your understanding of the unique advantages and drawbacks of daily life research.

THREE DEFINING FEATURES OF DAILY LIFE METHODS

Daily life methods go by many names. Some are well known, like *experience sampling* and *ecological momentary assessment*. Others are niche or quirky, like *beeper studies* and *real-time data capture*. Exhibit 1.1 describes the most common labels for this family of research methods; most of them will sound familiar. Just as language speakers coin new words to capture different shades of complex concepts, researchers coin new labels for diverse fields of scholarship. Each label in Exhibit 1.1 captures a different facet of the method and reflects the emphasis of a subgroup of researchers. Some labels emphasize that sampling happens in the real world; others emphasize the longitudinal quality of repeated assessment; still others emphasize real-time measurement. A few labels reflect historical events, like the popularity of pagers and Palm Pilots in pioneering research.

No one label neatly covers the many research traditions that use these methods. In this book, we adopt Mehl and Conner's (2012) choice of the term *daily life methods* to capture this sprawling family. We think the term is apt for positioning daily life methods within psychology's broader panoply of research tools. For most newcomers, the most intriguing—and often the most intimidating—feature of this research is that it happens in people's natural habitats. Learning to do daily life research requires moving away from the comfort zone of the lab—with all the control, precision, and standardization it affords—and into the participants' diverse, complex, and occasionally raucous daily environments. To researchers new to these methods, learning to collect data from participants in their own environments is the most salient feature of the method and the biggest barrier to getting started.

Whatever you call it, this family of methods has three defining features (Stone et al., 2007):

1. People are assessed in their *natural environments*. Daily life research favors assessing people in the messy real world, not the tidy research lab or clinic.

EXHIBIT 1.1. Some Common Labels for Daily Life Methods

- **Ecological momentary assessment.** Known as *EMA*, this term is probably the most common global label. Particularly prominent in clinical, medical, and health research, EMA emphasizes the goals of collecting data that are both real world (ecological) and real time (momentary) in nature.
 - **Experience sampling methods.** Usually called simply *ESM*, this label comes from the research tradition that emphasizes frequent random sampling of momentary subjective experiences, such as describing one's moods and activities every few hours for a week. It is rooted in the pioneering work of Mihaly Csikszentmihalyi (1975) and his collaborators.
 - **Diary research.** This label is most common in studies that collect surveys once a day, known as *daily diary studies*, and those that administer and collect surveys each time a focal event happens (see Chapter 2 for more details).
 - **Ambulatory assessment.** This label appears in the name of the field's major scholarly society—the Society for Ambulatory Assessment (<https://www.ambulatory-assessment.org>). A particularly prominent term in European research, ambulatory assessment emphasizes data collection that occurs as people move naturally through their daily environments. This term is especially apt for projects that use portable devices to assess biological outcomes, such as ambulatory assessment of blood pressure and heart rate variability (Houtveen & de Geus, 2009).
 - **Intensive longitudinal methods.** This label emphasizes the distinctive methodological quality of daily life research. People are assessed over time, as in all longitudinal studies, but the assessments are dense (e.g., once a day for 30 days) instead of sparse (e.g., twice a year for 4 years).
 - **Real-time data capture.** This label is most common in the tradition of research on passive, continuous sensing, such as studies that measure environmental features (e.g., ambient noise and temperature), physiological variables (e.g., heart rate), and behavioral factors (e.g., movement, eye tracking, and GPS location).
 - **Beeper research.** Early experience sampling work used pagers ("beepers") and digital watches that would make a retro, 1980s-style beeping sound to signal people to complete a survey. Although the term is now archaic, modern researchers still use *beep* as a shorthand for *signal* or *occasion* (e.g., "Participants were beeped four times a day to complete a survey").
 - **Palm Pilot research.** Older readers might remember Palm Pilots, which were like black-and-white smartphones that couldn't make calls, send texts, take pictures, or connect to the internet. When loaded with special-purpose software (Le et al., 2006), however, Palm Pilots could both signal participants and administer surveys. Their ability to both send signals and collect data made them wildly popular, so this now-outdated label stuck as a shorthand for the family of experience sampling methods.
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2. Researchers aspire to *real-time assessment*—measuring events and experiences close to when they happen.
3. Instead of giving a survey once, researchers *intensively assess* people over time—often one to 10 times daily for many consecutive days. Each participant provides a large sample of thoughts, actions, and emotions in a small time frame.

Natural Environments

Why do daily life researchers study people in their natural environments? Why is it worth the hassle? We can see the virtues and flaws of studying people in the real world by flipping the question: Why do we study people in the lab? Why do we ask participants to come to our research labs and clinics to provide data? One ignoble virtue of lab research is that it's convenient. We researchers work in our labs, so it's easier for us to ask participants to come to where the staff, equipment, and grimy coffee mugs are. Convenience aside, our scientific tools may be too fragile, bulky, or risky to take into the field. Few magnetic resonance imaging scanners have wheels.

The primary virtue of lab research, however, is control. Research labs are rarely glamorous places, but they afford a predictable, stable, and standardized environment for collecting data. Environmental distractions—noise, visual distractions, passersby—can be minimized, and the environment is held constant across experimental conditions and participants. Studying small effects requires sanding down as many sources of error as possible, and nothing beats the controlled environment of a lab for that.

For the lab environment to accomplish what it does, it needs to differ from the usual environments that people spend time in. Labs are quiet, innocuous, and constrained, with social norms that nudge participants to put away their phones, pay attention to instructions, and take the procedure relatively seriously. From their perspective, participants experience the lab environment as formal and odd: They're under a microscope, working on unfamiliar tasks, and unable to do much else for a certain amount of time. By design, a lab environment affords few behavioral degrees of freedom for participants. As Reis (2012) pointed out, “in a laboratory cubicle, participants can do little else but complete the tasks assigned to them by researchers as quickly as possible” (p. 13).

In short, the typical lab isn't a neutral environment. The physical environment surely varies—some researchers have nice space, and others toil in a hovel of cinderblocks and flickering fluorescent tubes—but it's the

social–behavioral environment that makes research labs unique for participants. To a daily life researcher, the research lab is merely one of many environments their participants entered that day. Once they leave, never to return, the participants fan out into a quirky range of environments: a bedroom they decorated themselves, their medieval history class, an outdoor park, the local museum, their car, or another stressful shift at the restaurant.

All research methods have trade-offs. In lab research, we trade realism for control. It's the right trade-off to make when we need controlled conditions but don't need realism. Daily life researchers take the other side of the trade: We trade control for realism so we can illuminate the richness and diversity of people's everyday worlds. Daily-life methods are animated by curiosity about what people's ecosystems are like. When people can do whatever they want, what do they do? How do they spend their time? What are their inner lives and social worlds like?

We've found that researchers new to daily life methods will fret when the findings from their first daily life study diverge from what they found in the lab. But don't worry—it would be weird to find the same thing, and you should expect the findings to vary. As one example, consider research on Openness to Experience, a broad factor of personality associated with imagination, fantasy, and vivid inner experience (Christensen, 2020). When cognitive psychology examines mind-wandering in the lab, such as how often people have task-unrelated thoughts during computerized cognitive tasks, Openness to Experience is essentially unrelated to how often people mind-wander (Kane et al., 2017). But when mind-wandering is studied in the real world using experience sampling, people high in Openness to Experience mind-wander much more often (Kane et al., 2017).

Neither finding is “wrong”—each reflects how people high in Openness to Experience behave in different environments. When sitting in a quiet, unfamiliar lab room with nothing to do but focus on a cognitive task and respond with a keyboard, they turn their efforts to the task. But when they're immersed in their quirky everyday lives, free to focus on more meaningful goals and experiences, their vivid imaginations will roam (Oleynick et al., 2017). An animating assumption in daily life research is that the research lab is but one of many contexts—it isn't the default, baseline, ideal, or benchmark against which all other methods are compared. The point of doing work outside the lab is the suspicion, if not the hope, that the findings will vary—in their direction, structure, or complexity—when you leave your lab and study people where they are.

Real-Time Data Collection

Daily life research emphasizes *real-time data collection*—measuring events as they happen (Schwartz, 2012). In practice, real-time responding is an aspiration, something that research projects approximate but rarely attain. In some studies, researchers can measure variables in literal real time. Many physiological and environmental factors—heart rate, air temperature, and ambient noise, for example—can be sampled many times per second without the participant’s input (see Exhibit 1.2). For studies using self-report assessment, however, it’s more accurate to say that daily life methods use *near-term data collection*: They measure people’s experiences close to when they happen. The gap from event to response ranges from under a minute in experience sampling studies, which interrupt ongoing activity for immediate reports, to most of a waking day in daily diary studies, which collect end-of-day responses that describe the day’s events (see Chapter 2, this volume).

Retrospective self-reports are the salient contrast for real-time assessment. The typical, off-the-shelf questionnaire asks people to think about themselves and their past to generate a number that describes it. The number might represent frequency information (e.g., how often, in a typical month, people exercise, drink alcohol, eat a serving of fish, or have a bad day at work) or for qualities of experience (e.g., ratings on a Likert scale for the typical intensity

EXHIBIT 1.2. Outcomes Beyond Self-Reports

Self-reports are by far the most common source of data in daily life research, but this fast-moving field adds new tools every year. We list here some examples of outcomes beyond self-reports that you might consider learning.

Environmental Variables

- Air temperature
- Lighting
- Ambient sound and noise exposure
- GPS location

Biobehavioral Variables

- Autonomic outcomes: heart rate, blood pressure, respiration, heart rate variability, cardiac systolic intervals, skin conductance
 - Endocrine outcomes: glucose, cortisol, alpha-amylase, oxytocin
 - Eye tracking
 - Posture
 - Frequency and rate of speech
 - Movement and activity level
 - Sleep periods
-

of joint pain, their global life satisfaction, their average sleep quality, or their overall emotional closeness with their partner). People will always give you a number when asked, but one wonders how people arrive at numbers for events and behaviors that they haven't tracked, rarely pay attention to, and often try to avoid thinking about. People are busy, frazzled, and distracted by their phones, so we can forgive them if they haven't been keeping track of the number of positive interactions they had with their spouse last week, how many servings of nuts they ate, and how many hours they spent distracted by their phone.

How people answer questions about their past behaviors and experiences is a fascinating topic of research in its own right (Stone et al., 1999; Tourangeau et al., 2000). A clear theme in the science of self-reports is that researchers shouldn't expect much when they ask people to pool their complex and varied experiences over time and distill them into a number. People can be much more accurate for some kinds of questions and experiences than others, but people's retrospective judgments are strongly influenced by events that are especially recent, salient, or intense; by mental models of the world and personal theories of what they are like; and by a range of self-serving and self-enhancing tendencies (Schwartz, 2012; Tourangeau et al., 2000).

Retrospective self-reports have their virtues, but if you want to know what daily experience is like—how often something happened, what the situation was like when it occurred, and how people experienced it—you need to assess things close to when they happen. Daily life research uses a few core sampling designs, explained in Chapter 2, that represent different strategies for catching what's happening in people's lives. Some studies interrupt people as they go about their day and ask about the present moment; other studies collect self-reports at fixed intervals, such as every 4 hours or every evening; and still other studies collect reports whenever a focal event happens. Their differences aside, these sampling designs all seek to reduce biases associated with remembering and tracking one's experiences.

Minimizing recall biases isn't the only strength of real-time assessment. Many things we want to study are so fleeting or subtle that people may not notice an experience, reflect on it, or label it. When asked later for global self-reports, they somehow must describe experiences that went unnoticed. The issue of *metaconsciousness*—the conscious awareness of conscious states (Schooler, 2002)—is a major motivation for real-time assessment. For example, people can have intense thoughts and experiences (e.g., urges connected to self-harm or disordered eating) without additionally thinking

about and labeling those experiences (“That’s the kind of thought I talked about with my therapist yesterday”). People usually go about their day in a cheery mood without reflectively thinking, “I feel pretty cheery right now.” Much mental imagery, from elaborate daydreams to hearing music in one’s head, is consciously experienced but not metaconsciously experienced (“Why am I hearing ‘Don’t Stop Believin’ again?”). The best way to assess fleeting, fast-moving experiences is to catch them as they happen.

Intensive Assessment Over Time

Repeated assessments are the third defining quality of daily life research. Many research methods use repeated assessments—longitudinal studies of development being a classic example—but daily life methods crank the knob to 11. Instead of assessing people once or twice a year, daily life projects assess people at least once a day and often at least once an hour. This kind of repeated assessment is often labeled “dense” or “intensive” (Bolger & Laurenceau, 2013): It seeks a big sample from a small period of time.

Some benefits of intensive, repeated sampling are obvious. If you want to study change, for example, the repeated sampling inherent in longitudinal designs will allow you to examine patterns of growth and change. Because it is interested in change over tiny time scales—a week, a day, an hour—daily life research must intensively sample to ensure it catches the fast-moving targets it studies. Many clinical and health constructs, for example, change during the day, often rapidly. It’s common for experiences of pain, stiffness, energy, alertness, and affect to vary across the waking day (Bellamy et al., 2004; Palmer, 2002; Watson, 2000). Many activities during the day—eating, exercising, arguing, stressing—spark interesting near-term consequences (e.g., isolating oneself, having cravings, or experiencing thoughts of self-harm) that are captured only with dense assessments.

Not all daily life studies are interested in temporal trends, though. Many use dense, repeated assessment to build up a large sample of each individual person’s thoughts, actions, and experiences. Just as a 10-item scale will yield more reliable scores than a three-item scale, all else equal, sampling 60 times from someone’s week will yield more precise estimates than six times—and both are probably better than asking for a global, retrospective judgment. Intensive assessment builds up big within-person sample sizes, which then allow researchers to make good estimates of the *frequency* and *quality* of daily experience. For frequency information, repeated assessment yields good estimates for how often something happened during the study.

If you want to know how often people smoked cigarettes, studied for a class, had stressful interactions at work, drank excessively, or practiced a skill they learned in treatment, intensive assessments will yield good frequency estimates. For qualitative information, repeated assessments illuminate people's average levels of the construct of interest, whether it's how well they slept last night to how strongly they crave nicotine.

Once you have a large distribution of experiences for a particular person, you can do more than just estimate the central tendency. The next step is to explore within-person variability: how much people vary around their own means, and why. Daily life researchers find the variability of a given person's experiences fascinating. We know that many psychological constructs vary widely within a single person's typical day. Daily life studies of moods and emotions, for example, show that a person's emotional states can vary greatly during a day (Eaton & Funder, 2001), that people show diurnal cycles in affect (Watson, 2000), and that many mood disorders are marked by volatile emotional experiences (Ebner-Priemer et al., 2009). For other psychological constructs, we might suspect interesting within-person variability but can find it only with intensive sampling. For example, people show many interesting circaseptal (7-day) trends in their emotions, activities, and goals that are apparent in daily diary studies that stretch across many weeks (Larsen & Kasimatis, 1990), and for some psychological constructs, few people expect to see meaningful within-person variability until daily life projects reveal it (e.g., expressions of personality traits; Fleenor, 2004).

Once you have enough observations to estimate means and variances of a person's experiences, the natural next step is to explain within-person variability in the experiences. Why does positive affect vary so much within a day? What other predictors that also vary within a day might explain within-person variance in positive affect? We know, to name a few examples, that fluctuations in daily mood are associated with biobehavioral variables (e.g., time since awakening, what people recently ate or drank), social factors (e.g., being alone vs. spending time with other people), and motivational processes (e.g., making progress on meaningful goals) that themselves vary throughout a day. Many daily life projects go a step further by exploring the time structure of within-person relationships, such as whether the effects of one experience (e.g., positive and negative emotions early in the day) show up at later time points (e.g., heavy drinking later that night; Wray et al., 2014). In short, you can learn a lot about a person if you have a large sample of the person's experiences to work with.

COMPARING DAILY LIFE METHODS WITH OTHER POPULAR METHODS

How do daily life methods compare with other popular methods in the social and behavioral sciences? Here's how daily life research is like and unlike experimental methods, survey methods, and longitudinal methods.

Experimental Methods

Experimental methods manipulate variables and observe their effects. Although experiments are not necessarily conducted in the lab, research labs are the natural habitat for experimental designs because they usually must hold many factors constant that are hard to wrangle in the field. Daily life studies happen outside the lab, but they can apply experimental methods. Many daily life studies manipulate between-person factors and randomly assign participants to conditions. Methodological studies, for example, have manipulated the length of surveys (Eisele et al., 2020) or the kinds of devices participants used (Burgin et al., 2012).

Experiments that test in situ interventions—known as *ecological momentary interventions*—are fascinating examples of the integration of experimental and ecological methods (Carter et al., 2007; McDevitt-Murphy et al., 2018). The typical daily life project, however, is correlational, focusing on the natural covariation of factors of interest. If anything, daily life projects tend to be doubly correlational: They are interested in between-person correlations (how features of people covary in a sample of people) and within-person correlations (how features of experiences covary in a sample of occasions).

Survey Methods

The prototypical survey project is cross-sectional: It seeks to understand a large group of people at a single point in time. For quality surveys, such as projects designed to guide high-stakes decisions, the sampling design and recruiting methods are carefully crafted to enable valid claims about a broader population of people (Henry, 1990). Most survey studies in the social and behavioral sciences, however, are cross-sectional studies of haphazardly recruited groups, usually quota samples and convenience samples (Silvia, 2020). Survey research with such samples is affordable and easy, so it isn't a bad place to start when exploring a new idea.

You can think of daily life methods as a quirky kind of survey project. The typical daily life study does give participants self-report surveys about

what they are doing and thinking. The key difference is the design. Survey projects seek to understand a large group of *people* by studying them once, usually by asking for global, retrospective self-reports. Daily life projects, in contrast, seek to understand a large group of *occasions*: events and experiences that occurred during the project period. Daily life designs are akin to multistage sampling: Researchers first obtain a sample of people and then obtain a sample of those people's emotions, thoughts, and actions using intensive, repeated surveys about real-time events.

Longitudinal Methods

Longitudinal methods are the cornerstone of fields interested in change, growth, and development. The stereotypical longitudinal study follows a group of people over a long period of time, usually years, but any study with repeated, time-structured assessments is longitudinal. Daily life studies, by sampling people repeatedly, certainly qualify. You can view daily life projects as studies that seek a fine-grained view of a small span of time: how adults consume alcohol on weekend nights (Kuntsche & Cooper, 2010), how polydrug users experience cravings and use illicit substances (Hopper et al., 2006), or how adults with depression engage with therapy-related goals in between sessions (Hoet et al., 2018). A stereotypical longitudinal project, in contrast, seeks a broader view of a large span of time, usually with assessments spaced by months or years. The label “intensive longitudinal methods” (see Exhibit 1.1) calls attention to the high density of daily life assessment.

Another way that daily life studies differ from typical longitudinal studies is the cardinal role of time. Longitudinal research is animated by understanding how psychological systems grow, evolve, and change. It sounds obvious, but time is the star of the show, the fundamental predictor, in longitudinal projects. In daily life projects, however, time per se may be unimportant. The data are collected intensively over time, often yielding many dozens of repeated measurements, but time might be peripheral to the research questions. Many daily life projects are interested in how processes unfold over small time scales, but in many others time is incidental. When the focus of a project is on understanding how often something happens or how within-person variables covary, the temporal order of the data is usually viewed as a nuisance to control for or ignore (see Chapter 6). All daily life projects thus have longitudinal assessments, but they do not necessarily have longitudinal hypotheses about growth and change across time.

APT RESEARCH QUESTIONS FOR DAILY LIFE METHODS

All research methods have trade-offs and sweet spots; there's no single best method for all research questions. Now that we've learned the fundamental features of daily life methods and drawn contrasts with other methods, what are apt research questions for daily life research? For what kinds of problems are daily life methods suitable? Here are some of the most common kinds of questions in published daily life research:

- *How often does something happen?* Research questions focused on the prevalence of activities and experiences in people's daily lives are a great match. If you want to know how often something happens, real-time tracking over a preset interval will be much more revealing than simply asking people, "In a typical week, how often do you . . .?"
- *How variable is an experience?* The "amount" of an outcome reveals little about its variability. Daily life methods, because of their intensive, repeated assessments, are well suited to reveal variability, dispersion, and diversity in a person's experiences and activities.
- *Does a variable have a temporal trend or pattern?* Repeated assessments over time can shed light on a variable's time structure. Questions about short-term temporal trends and patterns are perfect for daily life methods. We've mentioned several examples already, such as circadian and circa-septal trends in emotion (Larsen & Kasimatis, 1990; Watson, 2000).
- *Are two variables related within person?* How do variables relate at the within-person level (Hamaker, 2012)? As a person's mood changes, for example, what else changes with it? Intensive, repeated assessment lets one look at within-person relationships, including concurrent and time-lagged relationships.
- *Do people differ in how often something happens?* After collecting a large pool of responses, you can examine how between-person factors—such as group memberships, clinical status, and personality traits—predict the frequency of the event.
- *Do people differ in the level or amount of an experience?* A similar question concerns between-person main effects on levels of variables, such as whether personality traits predict the levels of outcomes like positive affect, loneliness, and activity levels.
- *Do people differ in their variability?* A less common research question—but one perfect for daily life methods—is whether between-person variables

predict differences in variability. Often the interesting action is in the variability, not the mean levels. With a large pool of responses, you can examine predictors of dispersion and variance, such as whether some clinical features predict exaggerated or dampened variability in emotion, sleep, or social activity.

- *Do within-person effects, like trends or relationships, vary between people?* Most projects involve a mix of within-person and between-person research questions, so exploring questions about their interactions is natural. Such effects, known as *cross-level interactions*, examine whether a within-person effect varies across people. For example, the within-person effect of social interaction on positive mood might be stronger for some people and weaker for others; likewise, a temporal trend, such as the effect of time of day on positive affect, alertness, or cortisol level, may be stronger or weaker for some people or groups.

This list isn't exhaustive, but these classic, prototypical questions should spark some ideas for how you can apply daily life methods to your research domain.

CONCLUSION

Once a niche set of tools, daily life methods have evolved into a popular family of methods used throughout the psychological, clinical, and health sciences. In this chapter we have reviewed the defining features of daily life research—real-time, repeated assessment of people in their natural environments—and considered some research questions that lend themselves to daily life methods. If you're ready to take the plunge into daily life research, in Chapter 2 we explain the first step in designing a project: choosing a sampling design.