The aim of this chapter is to review methodological research on naturalistic stressor assessment, in order to provide a framework for researchers and practitioners to choose among different categories of stressor measurement. Naturalistic stressor assessment falls into four general categories: life events; stress appraisal; chronic stress; and daily hassles. We discuss the history and current state of each of these measurement strategies, commenting on situations where their use is more appropriate. The review is necessarily brief; for more detailed information regarding methodological and technical matters, readers should consult two recent reviews of stressor measurement and theory (Herbert & Cohen, 1996; Kessler, 1997). We conclude with a look toward future development of these strategies.

Most research on stress effects is concerned with buffers in the stress process, rather than exposures to stressors. It is now generally recognized that exposure to stressors in daily life, or over the course of life, is one of the most critical factors influencing health and well-being (Kessler, 1997). Though it is long established that stress predicts ill health (Selye, 1976), there remains ambiguity about the dimensions of stress involved in this process, specifically the types of stressors that have more deleterious effects on health. Most interest in the literature concerns individual differences, specifically why some people rather than others develop ill health or disorder after exposure to stressors. To study the naturalistic stress process, the field needs equally valid and reliable measures of stressor exposure, in addition to measures of individual differences in host resistance or vulnerability. Specific research examples illustrate the utility of stressor exposure measures. The first relates to the emotional effects of job loss. One person may be depressed about a job loss while another is not. This difference in reaction could be due to objective differences in the severity of the job losses, e.g., loss of the primary household income, rather than the secondary one. To take another example, on average men are more affected by widowhood than are women, at least in the short term.
Perhaps men are less effective at coping with widowhood. However, it is more likely that something objectively worse, on average, happens to men when they are widowed. Women lose a confident and financial supporter. But men lose their only confidant, their primary connection to their wider social network (Umberston et al., 1992). Thus it is critical in stressor exposure research that the measures capture objective differences in stressors. Differential reactivity cannot be studied unless differential exposure is also measured.

Stressor measurement has evolved to disentangle the effects of stressor exposure from individual differences in reactivity. Four types of stressor assessment: (1) predispositional exposure to out-of-the-ordinary events that have the capacity to change the patterns of life or arouse very unpleasant feelings (life events); self-reports of perceived stressfulness and appraisals of threat posed by events (stressor appraisals); enduring or infrequent experiences in an area of life (chronic stressors); and exposure to relatively minor, less emotionally-arousing events whose effects disperse in a day or two (hassles). No one type of measurement predominates over the other, because each of the four has evolved in response to specific types of research situations. In addition, each of the traditions has borrowed heavily from the others over time: measures of life events are often combined with measures of chronic stressors, and measures of chronic stressors overlap, in practice, with the operationalization of appraisal and hassles.

Four factors tend to guide researchers in their choices for stressor assessment: (1) variations in research question; (2) the population studied; (3) the outcome of interest to the researcher (which may have prompted the original research question); and (4) the period of time over which a particular stressor is thought to have impact, whether a few hours or many years. These four factors interact with each other to some degree, but all are important individually in establishing the choice of measure.

Overview of the assessment of stressor exposure

In this section, we briefly discuss the history and current state of the assessment of stressor exposure.

Assessment of life events

There are two contrasting methods of life events measurement: checklist measures (Turner & Wheaton, 1995) and personal interview measures, that use qualitative probes in order to specify more precisely the characteristics of life events believed to produce stress, and the timing of life events in relationship to the outcome (Wethington et al., 1993). These two sorts of measures evolved from different theories of what constitutes stress and the overall stress process. Because of their ease of administration, checklist measures predominate in exploratory studies of stressor exposure.

Checklist methods

Checklist methods were developed from an environmental perspective on stress that asserts that events bringing about a need for readjustment are the basis of experienced stress (Holmes & Rahe, 1967). (See section below on personal interview methods for a description of alternative perspectives.) A typical checklist measure consists of a series of yes/no questions, asking participants to report if any situation like the one described has occurred over a past period of time (e.g., one month, a year). Some checklist measures have been elaborated to get more detailed information about events, such as date of occurrence, description, and self-reported stressfulness. These self-report descriptive questions are used to estimate the severity of the event, or its likely relationship to an outcome. Still the typical checklist measure does not rely on self-report to "rate" event severity, but assigns average ("normative") severity ratings assigned by investigators. Checklist methods yield a summary score of the estimated stressfulness of changes experienced over a period of time.

Checklist measures are popular, inexpensive and easy to administer. They also yield consistent relationships with physical health outcomes, a property making them useful for exploratory studies (Turner & Wheaton, 1995). The precursor of most current measures is the Social Readjustment Rating Scale (SRSS; Holmes & Rahe, 1967). It included both positive and negative events because it developed believers that change per se was associated with changes in health status. Over time, checklists have moved toward including only negative or undesirable events, based on findings that undesirable events are more predictive of health problems than positive events (Vinokur & Selzer, 1975). Events intended for use in the general population have become more comprehensive and inclusive of events occurring to women, minorities, and other populations, including children and adolescents (Turner & Wheaton, 1995).

Despite their popularity, checklist measures have encountered a great deal of criticism, most of it centering doubts on their reliability and validity.
Table 6.1. Interview measures of life events

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Administration</th>
<th>Rating system</th>
<th>Coverage</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Events and Difficulties Schedule (LEDs) (Brown &amp; Harris, 1978)</td>
<td>Personal interview</td>
<td>Contextual threat</td>
<td>Events, chronic stressors</td>
<td>Well-documented ratings</td>
</tr>
<tr>
<td>Psychosocial Assessment of Childhood Experience (PACE) (Sandberg et al., 1993)</td>
<td>Personal interview</td>
<td>Contextual threat</td>
<td>Events, chronic stressors, positive experiences</td>
<td>Designed for children</td>
</tr>
<tr>
<td>Structured Event Probe and Narrative Rating with Method (SEAPRATE) (Dohrenwend et al., 1993)</td>
<td>Personal interview</td>
<td>Revision of contextual threat</td>
<td>Events</td>
<td>Two-informant design</td>
</tr>
<tr>
<td>Detroit Couples Study (DAS-C) (Kessler &amp; Wethington, 1991)</td>
<td>Personal interview</td>
<td>Investigator ratings</td>
<td>Events, chronic stressors</td>
<td>Structured event calendar</td>
</tr>
<tr>
<td>Munich Events List (Wittchen et al., 1989)</td>
<td>Personal interview</td>
<td>Investigator ratings</td>
<td>Events, chronic stressors</td>
<td></td>
</tr>
</tbody>
</table>
determine if the event reported indeed matches the intent of the question (McQuaid et al., 1992). Reporting minor events as severe, moreover, may be related to the respondent's health status at the time of interview (Beckington, 1986).

The purpose of the interview probing is to gather enough information to rate the objective long-term contextual threat or severity of situations. The ratings of event severity is the key component of personal interview methods, as the experience of a severely threatening situation is hypothesized to pose for illness. Rating the degree of severity (threat) for objective situations has been documented over several decades. The Life Events and Difficulty Schedule (LEDS: Brown & Harris, 1978) is the best-known and best-documented interview method. Table 1 records that many interview measures use LEDS; or LEDS-like rating schemes.

The LEDS has experienced criticism for its rating and interview methods. Wethington et al. (1995) discuss these criticisms extensively. The most persistent criticism is that ratings of contextual threat include contexts many researchers would like to measure separately as moderators of the impact of health; specifically, there is a longstanding controversy over whether LEDS ratings of contextual threat cloud the distinction between event severity and the individual's vulnerability to a stressor (Tennant et al., 1981). It is fair to say that LEDS severity ratings may be confounded with socioeconomic status and other social vulnerability factors. The Structured Event Probe and Narrative Rating Method (SEPRATE; Dohenwend et al., 1993) uses a system of rating adjusted to remove social vulnerability factors.

Another criticism of interview measures relates to their expense. The Structured Life Events Interview (SLE; Wethington et al., 1995) is a shorter, more structured version of the LEDS, more consistent with standard survey techniques. The SLE reduced event rating and interviewer rating time.

(2) Dating methods. The use of the personal interview technique is also important when the relative timing of exposure to a stressor and the onset of illness is in question. Precise dating is necessary not only to establish the relationship of stress or exposure to onset, but also to identify the aspects of the stressful experience that affect onset. This precise dating feature makes it possible to distinguish and date a series of related events and difficulties, which is useful if the disease outcome is more likely when stressors are chronic (McQuaid et al., 1992).

(3) Independence from disorder. Events may also occur because of the pre-existence of a physical or mental disorder. If that pre-existing disorder is also the outcome of a particular investigation, interpretive difficulties arise. Rating routines for most personal interview measures of stressor exposure include an assessment of whether a situation is (1) known to be related to an actual disorder the respondent reports (e.g., getting fired because of drinking), or (2) hypothetically related to symptomatology (e.g., events involving interpersonal conflict). Most interview measures rate independence.

(4) Reliability and validity. Properties of interview measures for assessing stressors claim superior validity and reliability (Brown & Harris, 1982). Checklist methods appear more prone than interview measures to the misdating of distant events into a more recent time period (McQuaid et al., 1992). Checklists methods are probably not as effective as more intensive interviewing in communicating the importance of accurate answers to the respondents (Cauldwell et al., 1981). An interview facilitates the use of calendars and other memory aids to improve event recall and dating (Bobell et al., 1990).

(5) Comprehensiveness. All interview measures are comprehensive across types of stressors. They vary, however, in whether they include comprehensive assessment of chronic stressors as well as discrete events. This distinction is important for investigators, because chronic stress assessment is apt to be more important for some health outcomes (e.g., heart disease risk factors) in comparison to others (e.g., onset of depression).

Some concern has been raised in the past about the applicability of semi-structured interview methods to members of non-majority ethnic groups, and to children and adolescents. The fear is that events and their documented ratings are not applicable to non-majority populations, adolescents, and children, due to age, social status or racial differences in exposure or the meaning of the event. A number of LEDS studies have been conducted in racial minority groups in England and Africa (for a review of the cross-cultural studies, see Brown & Harris, 1989), as well as in Pittsburgh. Variability of meaning for different groups is approached by consensus panel and the construction of specific dictionaries of events for those groups.

Modified versions of the LEDS have been used with adolescents and children as young as eight (Goodyer et al., 1997). The LEDS adjusts for some age-related variation in meaning by applying higher severity ratings to certain events if they are a "first experience", for example, first sexual experience is distinguished as an event. With younger children, the LEDS has also been administered to mothers, who serve as informants for their children's events as well as stressful
ASSESSMENT OF STRESSOR APPRAISAL

Appraisal plays an important part in stressor assessment, as well as in theories of the stress process, most notably the transactional model of stress (Lazarus & Folkman, 1984). Cognitive appraisal of stressors is believed to underlie the emotional experience of stress. Measures of appraisal focus on the degree to which an event threatens well-being or threatens to overwhelm resources to cope (Lazarus & Folkman, 1984). The former is referred to as primary appraisal, and the latter as secondary appraisal. Primary appraisal is further subdivided into Loss (or harm), Threat (the personal loss), and Challenge (opportunities or potentials in the future for gain or loss). Secondary appraisal refers to evaluation of one’s capability of coping with the stressor, and the availability of resources to cope. Appraisal is hypothesized to at least partially determine coping strategies that could alleviate the stressor. The distinction between primary and secondary appraisal is essentially heuristic, since they occur simultaneously and each has an effect on the other (Lazarus & Folkman, 1984). Actual measures of appraisal, however, are not as numerous or as well-established as measures of exposure to events. Many are ad hoc, one or two-item measures designed for particular studies (Monroe & Kelly, 1995).

Measures of stressor exposure differ in whether they include or exclude appraisal. Some measures of stressor exposure, such as the

Perceived Stress measure (Cohen et al., 1983) consist of cognitive assessments of how well one coped with stressors. Checklists and interview measures of life events for the most part aim to exclude appraisal from stressor exposure assessment, although some explicitly do not (e.g., Horowitz et al., 1977). Those that exclude appraisal do so because of concerns that stressor appraisal is confounded with the health and psychological outcomes stressor exposure is hypothesized to predict (Monroe & Kelly, 1995). Indeed, researchers have speculated that some stressor appraisals are “caused” by underlying, persistent mood disturbance, rather than vice-versa (Schwartz & Stone, 1993). The transactional model of stress (Lazarus & Folkman, 1984) posits that appraisals can be measured separately and objectively.

Measures of stressor appraisal, in our view, do not substitute for measures of stressor exposure. Their major contribution has been to test various predictions of the transactional theory of stress. Because of their importance to the psychological model of stress, we review the major multi-item measures below. Key components of the appraisal measures are summarized in Table 6.2.

Measures of stressor appraisal differ by whether they separate or combine measures of primary and secondary appraisal. They also differ

Table 6.2. Measures of stressor appraisal

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Administration</th>
<th>Rating system</th>
<th>Theoretical basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale (Folkman et al., 1986)</td>
<td>Self-administration</td>
<td>Self-report</td>
<td>Transactional model</td>
</tr>
<tr>
<td>Stress Appraisal Measure (SAM) (Piccione &amp; Wong, 1990)</td>
<td>Self-administration</td>
<td>Self-report</td>
<td>Transactional model</td>
</tr>
<tr>
<td>Stone’s Appraisal Measure (Schwartz &amp; Stone, 1993)</td>
<td>Self-administration</td>
<td>Self-report</td>
<td>Transactional model</td>
</tr>
<tr>
<td>Narrative Appraisal (Steen et al., 1997)</td>
<td>Journal method</td>
<td>Investigator ratings</td>
<td>Transactional model</td>
</tr>
<tr>
<td>Diary Inventory of Stressful Events (Aiken, 1997)</td>
<td>Telephone</td>
<td>Self-report</td>
<td>Contextual threat</td>
</tr>
</tbody>
</table>
by whether they rely on self-report from respondents, or attempt to collect more objective indicators of the components believed to underlie stressor appraisal.

Lazarus' measure of Stakes delineates dimensions of well-being, or stakes, that underlie the primary appraisal dimensions of loss, threat, and challenge (Lazarus & Folkman, 1984). Stakes include threats to health, losses of and threats to important relationships, and threats to physical safety (Folkman et al., 1986). Stakes can apply not only to a threat to the focal respondent, but also to threats to the well-being of significant others.

A strength of the Stakes measure is that it corresponds to a well-established theory of the stress process, and thus is an important research tool for establishing the dimensions of environmental exposure that are related to a negative emotional response. A weakness of the Stakes scale is the fact that it is self-report. Although worded as objectively as possible, the items may be prone to confounding with underlying mood disturbance, which could allow unmeasured individual differences to affect judgment of whether an event threatens physical safety or personal health.

The Stress Appraisal Measure (SAM; Peacock & Wong, 1990) was developed as a multi-item, multi-dimensional measure combining primary and secondary stress appraisals. Measures of secondary appraisal developed by Lazarus (Folkman et al., 1986) are primarily single-item measures (Peacock & Wong, 1990). The wordings of some of the Lazarus items also overlap with measures of coping, most notably the Ways of Coping checklist (Lazarus & Folkman, 1984). The SAM operationalizes the appraisal dimensions of threat, challenge, centrality to self, controllability (by self or others), and uncontrollability.

Stone's measure of appraisal (e.g., Schwartz & Stone, 1993) is another refinement of the transactional model. In contrast to the SAM approach, Stone's measure is intended to be used with measures of stressor exposure. The dimensions of appraisal measured are: (1) controllability; (2) meaningfulness; (3) threat to stability; and (4) perceived severity/stressfulness. The strength of the measure is its attention to the prediction of the transactional model that appraisals should vary systematically with objective characteristics of stressors (Schwartz & Stone, 1993).

A unique approach to measuring stress appraisal was recently reported by Stem et al. (1997). This team has developed a means of classifying stress appraisals from written descriptions of stressful situations. Portions of descriptions are rated for the threat and challenge that a stressful situation poses to "the state of the world and the status of valued beliefs and goals" (1997: p. 873), and the appraisal of benefit or harm to future goals. Positive and negative appraisals were found to relate to well-being in ways predicted by the transactional model of stress. A strength of this approach is its use of highly individual material to measure appraisal. A weakness is that the descriptions were collected retrospectively, after the event had occurred, rather than in the process of the stressful situation. This makes it impossible to completely rule out retrospective reassessment of situational appraisals.

Almeida (1997) has developed a structured appraisal coding scheme based on narrative descriptions of daily stressors. These ratings are based not on self-report responses to degree of Stakc, but on characteristics of the events, rated by an independent coding staff. The dimensions were derived from dimensions of contextual threat developed by Brown and Harris (1978), with some additions from the transactional model (Lazarus & Folkman, 1984).

THE ASSESSMENT OF CHRONIC STRESSORS

Traditional measures of chronic stressors rely on appraisal of stressors in the environment. A typical measure of chronic stressors is a set of questions designed to capture the more frequently occurring stressors in important life roles, such as work and marriage (e.g., Pearlman & Schooley, 1978). A great deal of research exists that has established the range of experiences in roles that may evoke stressful reactions (Moon, 1981; Moon & Moon, 1981). Researchers who pioneered this approach (e.g., Moon, 1981) were attuned to the potential difficulty of relying on self-report, and tried to make the questions as objective as possible.

A number of research approaches aim to minimize self-report bias. Semi-structured interview approaches (e.g., LEIS) claim to reduce the confounding introduced through self-report by investigator rating of chronic stressors. The traditional approach, limitations of that approach, and several alternative approaches are reviewed below.

Traditional approaches

The traditional approach relies heavily on multi-item self-report interviews and questionnaires. The strength of the traditional instruments is their grounding in detailed, multi-dimensional assessment of environmental factors known to produce chronic stress (Lepore, 1995). Another approach is to cover a wider range, or multiple domains of life (e.g., Pearlman & Schooley, 1978), using items crafted to tap the same or
similar dimensions across domains of life. Many chronic stressor measures have impressive reliability; those for work and marriage are reviewed by Lepore (1995).

The most important limitation of appraisal-based, self-report measures is that a report of severe chronic stressors might be related to the distorted cognitions of the person reporting them (Lepore, 1995). Poor coping, or the inability of the respondent to resolve a problem, may make a stressor chronic. In addition, particular types of coping—e.g., redenomination of situations—may cause someone to underreport the presence of a chronic stressor (Stone & Schiffman, 1992).

Another potential limitation is memory failure, specifically recency bias. Respondent reports of the current level of severity may be confounded with the recent course of this difficulty (Herbert & Cohen, 1996). This is important because the level of severity may vary across a period of time and overall assessment of the severity may be affected by the recency of the latest event.

Alternative approaches to measuring chronic stressors

One widely used alternative to self-report structured-question assessment is the use of semi-structured interviewing techniques (Brown & Harris, 1978). Dictionaries of long-term difficulties rate exemplary cases based on objective criteria. Many interview measures that assess chronic stressors (see Table 1), such as the LEIDS, also establish change points in severity as part of their dating routine. Another alternative to self-report questions is the use of objective criteria available from observation, informant report, or population-level observation of the characteristics of situations to which many individuals are exposed, such as occupational stressors (Drey, Rosen & Trenman, 1980). Several examples in the literature suggest the potential of these methods, and are reviewed by Lepore (1995).

In studies using naturalistic observation, significant but modest correlations are found between observation and self-report. Observational measures, though, are less predictive of health outcomes. Although some of the presumed predictive power may be due to the elimination of self-report bias, it may also be due to observation that is less detailed or frequent than is necessary to measure true exposure to chronic stressors.

Lepore (1995) asserted that in some respects informant observation of chronic stressor exposure might prove superior to interview observation. Informant data is less contaminated by self-report bias, less prone to influence by research subject reactivity, and better informed regarding frequency and content of exposure (Stone et al., 1991). Several groups of stress researchers (e.g., Altman et al., 1999; Kosker & Wellington, 1991; Sandberg et al., 1993) have utilized family-level designs to collect informant data on life events, chronic stressors, and hassles.

ASSESSMENT OF HASSLES

Early hassles assessment relied on diary methods of collection, where respondents were asked to keep records of small events occurring over a given period of time, usually a 24 hour period. Researchers took two approaches to measurement: open-ended (Eckerdode, 1984), which asked respondents to describe bothersome events of the day; and structured questions, simple yes or no questions modeled on life events checklists (Kanner et al., 1981).

Use of these methods has provoked multiple criticisms. One of the most persistent has been that diary methods of data collection, relying on written self-report, confound objective events with psychological appraisal (Bolger et al., 1984; Eckerdode & Bolger, 1993). All of these methods assume participants respond to the questions in a relatively neutral and uniform way (Schwarz & Stone, 1993). Yet it is known from research on life events and chronic stressors, that researchers have found it very difficult to communicate the meaning of an event or situation without relying on words that evoke judgment and appraisal of its stressfulness, such as "a lot of demands".

A second persistent criticism is that the self-report of hassles is confounded with coping. The argument here is that when a respondent copes successfully with small hassles, such as overheads or interruptions, (he is less likely to either (1) remember the occurrence, or (2) interpret the situation as a stressor (Aspinal & Taylor, 1997).

A third criticism is that methods of data collection for hassles are too time-consuming and expensive to use in large scale surveys of the population, particularly on a daily basis. Most research on daily events has been conducted in small, discrete, relatively homogeneous samples (Eckerdode & Bolger, 1993; Stone et al., 1991). Such samples limit generalizability of the findings. Researchers with modest budgets tend to collect large amounts of information from a relatively small number of people, rather than smaller amounts of information from a large number of people (Stone et al., 1991).

In response to these three criticisms, researchers have developed a number of new approaches. In addition to the open-ended approach, and the structured approach, researchers have also combined the two
methods. The new methods have attempted to reduce confounding of daily events with stressor appraisal and coping, and to overcome the small sample problem. Several of the most common methods are summarized in Table 6.3 along with a new telephone method applying investigator-based event rating techniques to hassles.

Many measures are particularly comprehensive. The original Daily Hassles and Uplifts Scale is a list of 117 items (Kanner & Feldman, 1991). A revised 53 item scale (DeLongis et al., 1988) is also comprehensive, but has an additional advantage. The latter version was designed not only to shorten the scale but also to respond to criticisms that many of the original items were confounded with psychological or health symptoms (Dohrenwend & Shroft, 1985, Lazarus et al., 1985). The strengths of this scale include its tight connection to the transactional model of stress, and its wide use by other researchers (Eckenrode & Bolger, 1995).

In the Daily Life Experience Checklist (DLE; Stone & Neal, 1982), participants check off whether events occurred, and are asked to rate the desirability of those they check. (They may also write in events they consider stressful, but that did not appear on the list.) One advantage of this method is that it was originally designed and validated as a comprehensive measure of daily stressors (Eckender & Bolger, 1995). The Daily Stress Scale (Bolger et al., 1989) is short, enabling its use in daily diary surveys that measure multiple dimensions of the daily stress process. A strength of this scale is that it was designed to measure potentially chronic stress processes over a period of time, in the particular domains of work and family (Eckenrode & Bolger, 1995). The Daily Stress Inventory (DSI; Branteley et al., 1988) is notable because a scoring manual is available (Branteley & Jones, 1989), documenting its reliability and validity.

Other scales appear more suitable for weekly or monthly use. The Inventory of Small Life Events (ISLE) is a very comprehensive list of desirable and undesirable events (Zautra et al., 1986). The advantage of this scale is that it was composed to focus on objective, observable minor events and changes; all items are written to focus on observable change, and to exclude internal states or reactions to the environment. The Unpleasant Events Schedule (UES; Lewinsohn & Talkington, 1979), also more suitable for weekly or monthly use, contains a mixture of minor and more serious items. A potential weakness for some investigations is that several sets of items in the UES measure appraisal of social support, a concept some researchers may wish to keep separate from an event measure.

A new method is the Daily Inventory of Stressful Events (DISE; Almeida, 1997), a semi-structured survey instrument designed for telephone administration. The DISE applies investigator-based methods to rate daily events and hassles, modeled on LDES techniques. The interview consists of a series of eight questions asking whether certain types of events (e.g., arguments, home or work events, etc.) have occurred over the past 24 hours, along with a set of guidelines for probing affirmative responses. Once an event is mentioned, the interviewer asks questions about objective circumstances surrounding the event. The purpose of the probes is to gather enough information to rate various components of the discrete events. In order to examine these events, interviews are tape-recorded, then transcribed and coded for six different aspects: (1) specific event classification; (2) focus; (3) dimension of threat; (4) event continuation; (5) connection to an ongoing situation (reported the previous day or days); and (6) severity. The ratings minimize confounding with coping to a great degree by substituting investigator judgment for respondent self-report.

### Table 6.3: Measures of daily hassles

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Method</th>
<th>Length</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hassles and uplifts</td>
<td>Self-administered (DeLongis et al., 1988)</td>
<td>53</td>
<td>Positive and negative, Comprehensive</td>
</tr>
<tr>
<td>Daily Life Experience Checklist (DLE; Stone &amp; Neal, 1982)</td>
<td>Self-administered</td>
<td>78</td>
<td>Comprehensive, open-ended component</td>
</tr>
<tr>
<td>Daily Stress Scale (DSS; Bolger et al., 1989)</td>
<td>Self-administered</td>
<td>22</td>
<td>Work-family focus</td>
</tr>
<tr>
<td>Inventory of Small Life Events (ISLE; Zautra et al., 1986)</td>
<td>Self-administered</td>
<td>178</td>
<td>Comprehensive</td>
</tr>
<tr>
<td>Daily Stress Inventory (DSI; Branteley et al., 1988)</td>
<td>Self-administered</td>
<td>58</td>
<td>Comprehensive</td>
</tr>
<tr>
<td>Unpleasant Events Schedule (UES; Lewinsohn &amp; Talkington, 1979)</td>
<td>Self-administered</td>
<td>120</td>
<td>Includes social support, assessment</td>
</tr>
<tr>
<td>Daily Inventory of Stressful Events (DISE; Almeida, 1977)</td>
<td>Telephone (plus probes)</td>
<td>8</td>
<td>Investigator rated severity Upen-ended</td>
</tr>
</tbody>
</table>
Overview and future directions

Future assessment of stressor exposure will probably rely more heavily on combinations of acute and chronic stress assessment. The majority of studies have used only interview assessment using qualitative probing techniques. Yet it is possible, and perhaps advisable for future innovation, to do this in several other ways, by developing more sophisticated structured interview methods, conducting focused studies of specific stressful events, utilizing quasi-experimental and intervention techniques, and paying more explicit attention to the lag between exposure and onset.

MORE STRUCTURED AND SOFTSCHIFIED INTERVIEW METHODS

Some advances could be made by developing more structured interview methods for life events. Two groups of researchers have already begun sentencing structured interviews to include many of the dimensions used in semi-structured interviews, such as event duration and resolution (Turner & Avison, 1992) and objective contextual factors (SLI; Wethington et al., 1995). Almeida (1997) has applied these techniques to daily hassles.

FOCUSED STUDIES OF SPECIFIC LIFE EVENTS

Focused studies of events combine the assessment of chronic and acute stressors, by embedding an investigation of life events into a larger understanding of the consequences of stressful in the person's day-to-day life following the occurrence of the event (Turrier et al., 1991).

Several recent studies of this sort have been conducted, each focused on a single major event such as divorce (Aseltine & Kessler, 1993), unemployment (Turner et al., 1991), and widowhood (Unruh et al., 1992). The basic approach in each study has been to start with a conceptual model of the dimensions of the event that may lead to depression in some victims and then to measure those dimensions longitudinally in a sample of people who were exposed to the event. Simultaneously, the same duration and in an appropriate comparison group of people who were exposed but not exposed. The then used standard multivariate analysis procedures to examine the mediating effects of the theoretically-derived stressor dimensions on the overall relationship between the event and depression.

Generally, the result of these studies is that most of the association between the focal events and depression can be attributed to the mediating effects of role-related stressors. These three studies were unable to control for other likely confounding factors. Future work involving focused event studies should use fully prospective designs, carefully matched control groups, and intensive personal interview methods with contextual ratings to define the intervention, chronic stress dimensions.

EXPERIMENTAL AND INTERVENTION METHODS

Early work on stress was experimental (Selye, 1976), utilizing methods very unlike the naturalistic assessment methods described here. The experimental work was judged insufficient on its own because of the lack of ecological validity (mild experimental stressors used on humans) and generalizability (animal models). Naturalistic studies have to a great degree replaced experimental work, with the consequence that the rigor of experimental methods was lost. This is unfortunate, because naturalistic studies have documented that stressor exposure is not random, but often influenced by choice or behavior (Kessler, 1997). Naturalistic studies cannot, on their own, control for the nonrandom nature of stressor exposure.

Very little has been done to address this issue in naturalistic studies. A few quasi-experimental studies (e.g., Aseltine & Kessler, 1993) have attempted to take self-selection into account when evaluating multivariate models of stressor effects. Intervention studies of stress processes show the most potential for re-introducing the experimental method into more naturalistic methods of stressor assessment. The results of experimental interventions aimed at preventing depression among people exposed to particular life events demonstrate the promise of such methods (Price et al., 1992).

LAG BETWEEN EXPOSURE AND ONSET

Techniques for assessing stressor assessment should be carefully matched to a theoretical model of what constitutes sufficient stressor exposure to lead to onset of disease. Checklists assessment methods, at both the daily and weekly level, are adequate for exploratory studies, but too often they are used in long-term prospective studies of illness course and onset where measures of chronic stressors, and long-term severity of stressor exposure may prove more beneficial. Personal interview measures, measures of daily events, and non-traditional measures of chronic stressors, combined with thoughtful prospective designs, will be necessary in order to explicate more fully how long and how severe stressor exposure must be to provoke illness.
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