LIFE EVENT RESEARCH: A REVIEW OF METHODOLOGY (WITH SPECIAL REFERENCE TO INDIA)

SHEKHAR SAXENA, M.D.
D. MOHAN, M.D.

SUMMARY

In spite of extensive work having been done on the correlation between significant life events and development of physical as well as psychiatric illnesses, major controversies remain on the methodological issues involved. The present paper deals with some of these issues, e.g., selection of events and formation of event lists, severity rating of individual events, summation of event scores, reliability of reporting and provision of adequate control groups. Different modes of categorization of events are discussed. Need for caution regarding straight correlation of experienced events with illness has been pointed out. Special emphasis has been given to methodological modifications necessary for life event research in India. These include the issue of culture specificity of events and relatively prolonged stresses, reliability testing from a family member and use of semistructured interview method in preference to paper and pencil questionnaires. Suggestions are offered for better controlled and methodologically superior studies on life events in India.

Life without stress, cannot be imagined. Psychosocial stresses form an inseparable part of life, and up to a degree may be essential for adequate personality development. However, if these stresses become too severe or too numerous they may affect the psychic equilibrium, producing mal-adaptive patterns and possibly mental disorders. The notion that major stressful events in life can give rise to mental illness is prevalent since antiquity. But scientific investigations in this area have been carried out only in the last few decades. Life event research is one of the ways of systematically studying the relationship between stress and illness.

The basic method in life event research is determination of significant stressful events in specific period of a person's life and their correlation with subsequent illness, physical and psychiatric. Starting from Nineteen Sixties, a large number of studies have been carried out in this area. However, clear and undisputed results are few. As Dohrenwend and Dohrenwend remarked in 1978 "the idea that life stress can cause illness is supported more by faith than scientific evidence". One of the major factors responsible for this state of affairs is the presence of large number of methodological problems. These problems become all the more significant when such research is attempted in widely varying cultures.

Methodological problems in the study of life stress were reviewed in India by Murthy (1975). However, with fresh advances in this area and appearance of a number of studies from India, methodological issues have attained increasing importance. The present paper is an attempt to review the methodological problems in life event research with special reference to our country.

BASIC METHODOLOGY

Life event research is based on the underlying presumption that significant events require some readjustment in life and produce significant upsetting. An accumulation of these events in succession produces a nonspecific vulnerability for the development or precipitation of physical
and psychiatric disorders. One of the major methodological advancements in this area was brought about by T. H. Holmes and R. H. Rahe in 1967. These workers developed a way of quantification of stress associated with each event on an average person. This was done by making a sample of normal persons score each event for the social readjustment required on a continuous scale around one event fixed as an index. The average score for each event was computed. Summation of scores of all the events experienced by a particular person in a specific period of time was called Life Change Unit (LCU), which represented a global index of stress experienced by the person. Correlation between LCU and subsequent illnesses of various types have been studied by various authors (Rahe and Lind, 1971; Theorell and Rahe, 1971; Brown, 1972; Heisel, 1972; Grant et al., 1974; Morrison et al., 1968; Eisler and Polak, 1971). The instrument constructed by this group of workers has been called Schedule of Recent Experience (SRE) (Holmes and Rahe, 1967). Other authors who have done a similar exercise are Paykel et al. (1971), and Tennant and Andrews (1976). From India, Dubey et al. (1980) and Singh et al. (1981) have attempted scaling of stressful life events. However, as will be elaborated later, there is a growing dissatisfaction with indiscriminate use of weighted scales because of a large number of unresolved methodological problems inherent in their construction and application. Many authors, including Paykel et al. (1973; 1969) have used instead a qualitative categorization of events. A large number of studies have taken various groups of psychiatric patients presenting to the hospital and compared their recent life events with events in earlier periods or with events experienced by control groups. In general results have shown that patients experience increased events before development of the illness.

Some important methodological issues: Some of the important methodological issues in life event research are discussed below—

(i) Formation of event-list—All events which are thought to require significant readjustment are included in the event list. Desirable as well as undesirable events varying from major to quite minor degree are included. At best it is an empirical exercise and it appears almost impossible to include all significant events which a person can experience, in a list of reasonable length. Most of the internationally used lists have included 40 to 70 events (Holmes and Rahe, 1967; Paykel et al., 1971; Tennant and Andrews, 1976). Selection of events for an event list presents some special problems which are different from the usual psychological test construction procedure (Cleary, 1974). Representative sampling is not sufficient; instead an exhaustive examination for all possible events is necessary. Unlike the internal consistency requirement for other tests, in this area of research correlations between different events is not desired. High positive correlations represent redundancy. However, if mutually correlated events are shown to be causally independent, they should be included in the event list. Events with low rates of experience cannot be rejected, as they may be highly stressful for the subjects who experience them.

Many events are culture-specific. Hence uniform and universal life event list cannot be advocated. Many events included in the Western lists like 'change in church activities' or 'change in recreational activities' may not be relevant for our population. Instead, many other events as 'partitioning of joint family', 'going on a pilgrimage' or 'natural calamities like floods' may be important in our culture. There does not seem to be any alternative to constructing culture-specific event lists.

Another important limitation in this area of research is inclusion of only clearly identifiable discrete events in the lists,
These lists exclude relatively prolonged stresses (e.g., constant friction with in-laws) and anticipated stresses (e.g., worries about impending marriage of daughter). These may be very significant, especially in our culture. Inclusion of these stresses may decrease the objectivity of the research, but will undoubtedly make it more meaningful.

Studies conducted in India have used events lists prepared in other countries either without change (Venkoba Rao and Nammalvar, 1976; Prakash et al., 1980) or after modification (Dube et al., 1980; Wig et al., 1980; Chatterjee, et al. 1981). Gupta et al. (1981) have used only 'subjective report' of the patient in specified areas without the help of any event list. The most systematic attempt in this direction has been done by Singh et al. (1981) who have drawn a list of 51 events by open ended enquiry from 200 adult subjects with Holmes and Rahe's list as the base.

(ii) Severity rating of events—Weightages are assigned to each event for the quantification of stress associated with them. It is presumed that a global rating of 'readjustment required' or 'upsetting produced' will correspond to the stress value. Rating is done by a sample of normal persons and a mean of the ratings is taken for each event. The results of different investigators all point to a moderate degree of consensus among raters together with large individual variations in the significance attached to individual items (Gleary, 1974). A serious problem in life change methodology is whether average ratings of seriousness are a proper basis for weighting the responses of all or most individuals. Grant et al. (1976) believe that average scores may not be applicable and population specific event weights are desirable.

Paykel et al. (1971) found a tendency for recently experienced events to be rated higher while according to Lundberg and co-workers control subjects gave higher ratings on non-experienced than on experienced events (Gleary, 1974).

A number of cross cultural studies have been done of severity ratings (Masunda and Holmes, 1967; Harman et al., 1970). They found correlations of 0.7 to 0.9 between different cultures. However, these studies were confined to urban and educated subjects belonging to industrialised nations. It is doubtful whether these severity ratings can be applied to uneducated and rural population of our culture.

Recently some studies have been done in India on scaling of life events. Dube et al. (1980) have studied 110 normal persons for their severity ratings on a 7- point scale for the readjustment required by life events. They found a moderate consensus among their subjects and have drawn up a hierarchy list of events based on their perceived stressfulness. Singh et al. (1981) have constructed their presumptive stressful Events Scale for use in India. They initially used four categories based on severity but later switched over to a continuous rating with a maximum score of 100. Rating was done by 120 subjects and mean stress scores are given in the monograph. However standard deviation for each event is not given, making it difficult to assess as to how many events had too wide a variation for their stress scores. Moreover when analysing the effect of demographic variables like age and education, use of an aggregate mean derived from stress scores of all events is of questionable value. Apart from these limitations this study is a definite advancement in the area of life event research in India.

(iii) Summation of event scores—The total quantity of stress experienced by a subject in a specific time period is found by the summation of scores of events experienced by him in that period. This is based on the assumption that the effect of multiple events is additive. No importance is given to whether the events have occurred close to each other or far apart in time. The additivity assumption is a gross over simplification for which an effective alternative
(iv) Qualitative analysis of events—As has been described, the crucial steps in the quantification and summation of stress value of events are based on assumption which are unproven and highly approximate. This has led to considerable decrease in the initial enthusiasm on the ‘measurement’ of stress. One of the original proponents of quantification has summed up the situation very aptly in an editorial when he says “For a clean estimate of environmental stress vice (in place of) subjective stress, it is hard to improve upon a simple counting of recent life changes” (Rahe, 1978).

Paykel and co-workers have used alternative methods in several of their studies (Paykel et al., 1969; 1975). They have used the following comparison methods between events experienced by patients and controls.

(a) Total number and mean number of events experienced.

(b) Comparison of frequency of occurrence of each event between patients and controls.

(c) Classification of events into categories like
   (i) Exit and entrance from social field.
   (ii) Desirable and undesirable, in terms of shared values of society.
   (iii) Areas of activity like health, employment, family, marital and legal.

Brown et al. (1973) have used a four point scale for categorization of events into marked, moderate, little and none on the severity of threatening implications.

The qualitative analysis adds to the specificity of research beyond a simple counting of events, without undergoing formal rating of events. This approach may be particularly suited to our country because of two reasons: one—formal rating of events on a continuous and wide ranging scale requires a level of psychological sophistication and cooperation which may be difficult to achieve in our setting, two—even if mean scores are derived from such rating, they may not be valid for our country as a whole, which is so heterogeneous for language, caste, religion and other socio-demographic factors.

(v) Reliability of event reporting—Unfortunately not enough attention has been paid to reliability of reporting of events. Two methods of checking reliability have been used—test-retest reliability, and patient-informant reliability. In the former method the subject is asked to report events of a particular period at two points of time a few months apart and concordance is measured. This method has yielded reliability rates of 0.5 to 0.8 in different studies (Casey et al., 1967; McDonald et al., 1972). In the second method events reported by the subject are cross checked with a close relative. Using this method Hudgens et al. (1970) reported 57 per cent reliability, on the other hand Brown et al. (1973) found the agreement rates up to 81 per cent. A high agreement between the patient and his close relative could be taken as an evidence for the construct validity of the measurement technique (Cleary, 1974).

There is evidence that major events are recalled more consistently than minor ones (Casey et al., 1967) and recall of events in recent time periods is better than remote events (Jenkins et al., 1979).

It has been suggested (Brown et al., 1973) that reliability is likely to be better if semistructured interviews are used for eliciting life events instead of paper and pencil questionnaires. This may be particularly true for our country where literacy rates are low. Some of the other suggestions for increasing the reliability are suitable changes in the wording of events to make them least ambiguous, to have a 12 months recall period and asking the subjects to indicate only the occurrence of the event and not its frequency (McDonald et al., 1972). In our country events ex-
experienced by the patient are likely to be known to his close relatives staying with him. Hence reliability checking from a close family member seems to be suited for India. Relatives generally accompany their patients to the hospital, which makes this method almost ideal for reliability testing. Systematic data on reliability of event reporting is not available for most of the Indian studies. However one of them (Wig et al., 1980) mentions steps taken to ensure reliability.

(vi) Events as a result of illness—Maximum amount of work on life events has been done in psychiatric illnesses and these are very illnesses which can result in many changes in life due to insidious onset of symptoms. To avoid this pitfall many steps have been taken. Events are taken as significant only if they occur before the onset of illness. However events may also be responsible for exacerbation of illnesses, and these might be missed. Brown et al. (1973) have divided events into those which could be dependent on the illness and others which are quite independent. Similarly Mueller et al. (1978) have divided events into those which could be 'confounded' with psychological condition and others which could not. If it is shown that totally independent events are also more common before the illness onset then the stress value of events is substantiated.

(vii) Correlation and events with illness—Considerable caution must be exercised in assigning casual relationship between events and illness. It should not be forgotten that life events constitute only one of several factors in the causation of illnesses. In fact there is evidence that events might be playing a relatively small role in the development of illnesses. Data from US Navy ships indicate that the correlations between LCU and illness measures vary between 0.11 to 0.13 (Cleary, 1974). Although higher figures have been obtained in some studies using subjects under unusually stressful environment, it is unlikely that events contribute more than 10 per cent to the total variability for the causation of usual psychiatric illnesses. Further, as has been referred to earlier, events lend themselves to relatively easy identification and measurement, although other types of psychosocial stresses which are less amenable to scientific study, may be playing significant, possibly a greater role in the development of illnesses.

Going into the conceptual controversy of vulnerability and precipitating factors may be out of place in this article, however it is worthwhile to consider a significant methodological advancement related to it. Brown (1972) has advanced the concept as it is known that even medical illnesses are preceded and associated with increased life events.

The most preferred controls are 'normal' people, taken either from community (Brown and Bireley, 1968) or from the relatives of the patients (Uhlenhuth and Paykel, 1973).

Among Indian studies Prakash et al. (1980) have used Schizophrenic patients as controls to their group of primary depressives, while Chatterjee et al. (1981) have used ENT patients as controls. Venkoba Rao and Nammalvar (1976) and Gupta et al. (1981) do not clearly report as to where their control groups are taken from.

(viii) The problem of controls—Another important problem in life event methodology is the choice of control groups. Some studies have used self-controlled design, in which event of the patients in two time periods are compared with each other (Rahe et al., 1964; Rahe and Lind, 1971; Theorell and Rahe, 1971). This design involves problem of different extent of recall for different time periods, referred to earlier under reliability. In some other studies psychiatric patients have been compared to controls taken from general medical patients (Forrest et al., 1965; Hudgens et al., 1967). This is also unsatisfactory.
of 'brought forward time' which is derived from elaborate calculations. Essentially it supposes that the illness was any way destined to begin in future and stressful events bring this onset nearer. Brought forward time is this shift in the time of onset of illness and so is a measure of stressfulness of the event.

(ix) Other methodological issues—The above mentioned issues have been discussed separately because they are relatively specific to life event research. This should not undermine the importance of other equally important issues which are applicable as much to life event research as to any other area of research in psychiatry. These include adequate sample sizes, use of research criteria for identifying homogenous diagnostic groups, adequate matching of different groups and the question of adequate cooperation from patients.

CONCLUSION

It is apparent from the above discussion that life event research involves an unusually large number of methodological problem. Suitable ways to ameliorate the effects of many of these problems are still unknown. Moreover it is likely that further clarification of conceptual and theoretical issues will necessitate newer modifications in the methods used in this area of research.

Some of the useful suggestions for this area of work in India will be—use of moderately large sample size, use of event list prepared for our population, semi-structured interview schedule, some measure of reliability, community sample of controls, keeping the time period for recall one year and use of newer concepts like brought forward time. With increasing number of life event studies from India it becomes important to be aware of these methodological issues and to apply them while planning or evaluating research work.

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